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SAYLORVILLE STAGE 3 CONTRACT COMPLETION REPORT: TESTING
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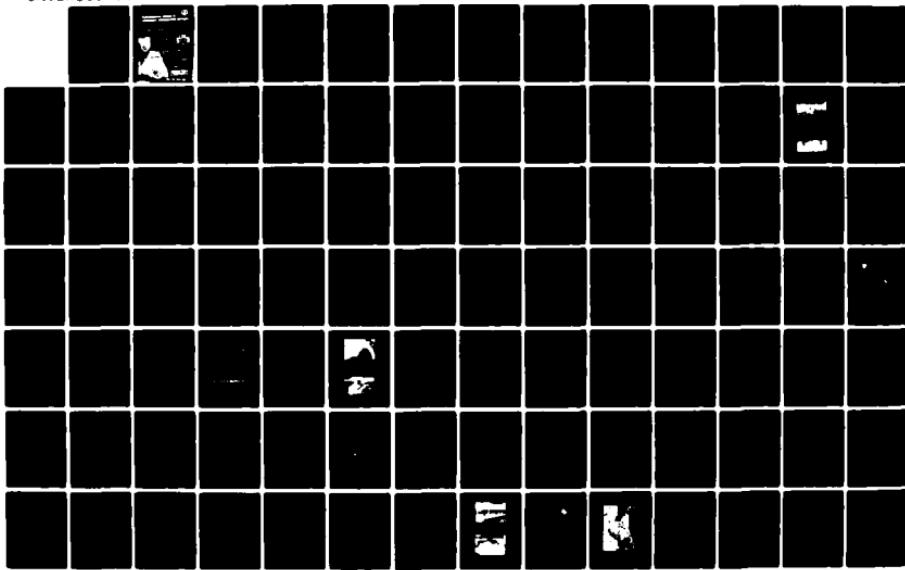
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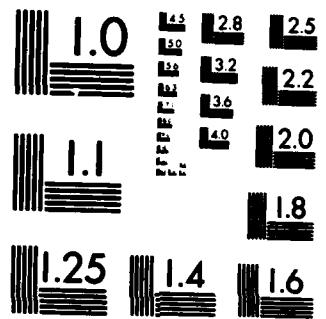
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SAYLORVILLE STAGE 3
CONTRACT COMPLETION REPORT

Testing of Priority I
Archaeological Sites
1980 - 1981

Nancy M. Osborn
David M. Gradwohl

Research Report

Iowa State University
Archaeological Laboratory

February 1982

ABSTRACT

→ This report reviews significant data discovered at fifteen Priority I archaeological sites between September 1980 and June 1981 in the Saylorville Lake project under the auspices of Contract DACW25-80-C-0042 between the U.S. Army Corps of Engineers and Iowa State University. Rapid recovery testing techniques were emphasized and included the use of hydraulic soil probes, backhoes, scrapers, and other power machinery. Some of the sites were demonstrated to have the potential to provide information which may elucidate several of the principal research questions posed for the archaeology of the central Des Moines River Valley and aspects of the prehistory of the broader prairie-plains regions. On the basis of the present test information sites were ranked into three groups for the purposes of further investigation. Sites of "Highest Potential" are 13BN27, 13BN30, 13BN38, 13BN106, 13BN114, 13BN168, and 13BN182. Sites of "Moderate Potential" are 13DA6, 13BN14, 13BN40 and 13BN203 while sites of "Low Potential" are 13PK265, 13PK132, 13BN102 and 13BN123.

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INTRODUCTION

GENERAL BACKGROUND OF THE SAYLORVILLE DAM AND LAKE

The Saylorville Dam is located in central Iowa along the Des Moines River approximately eleven miles upstream from the city of Des Moines. This dam and its associated flood control structures were authorized in 1958 by the Flood Control Act of Congress. Land acquisition and construction activities at the Saylorville Dam site were initiated by the U.S. Army Corps of Engineers in 1965 and construction of the main dam was completed during the summer of 1975. The gates of the dam were closed during the spring of 1977 and later that summer the resulting Saylorville Lake reached its permanent conservation pool at an elevation of 833 feet above mean sea level. The conservation pool of Saylorville Lake covers approximately 5,550 acres of the Des Moines River Valley and extends some 17 miles upstream from the main dam to a point between Polk City and Madrid.

During periods of heavy rainfall in this region, the level of Saylorville Lake will be allowed to rise up to a maximum flood control pool of 890 feet above mean sea level. The impounded waters of this flood control pool ultimately can inundate approximately 16,700 acres of the valley and extend upstream about 54 miles through Polk, Dallas, and Boone counties to the town of Fraser (see Figure A-1). To date, the maximum level attained by Saylorville Lake was during the spring of 1979 when the flood control pool rose to 883 feet above mean sea level. At that time waves from the lake splashed over the spillway at the main dam while the impounded flood waters backed up over portions of the Ledges State Park and extended upstream along the valley to a point north of Boone.

GENERAL GEOMORPHOLOGICAL AND ECOLOGICAL SETTING OF SAYLORVILLE LAKE

In terms of general geomorphology and biome, the Des Moines River watershed can be distinguished from those of the Missouri and Mississippi rivers (Oschwald et al 1965: 10; Aikman and Gilly 1948; Worthen 1858; Lees 1916). Physiographically the central Des Moines River Valley comprises part of the young glacial plains and dissected loess-covered till prairies located near the western border of the Central Lowlands Province (Raisz 1939; Fenneman 1938). Bedrock outcrops, consisting principally of Upper Mississippian limestones and Middle Pennsylvanian shales, limestones, sandstones, and conglomerates, occur in several localities along the course of the Des Moines River (D. Anderson and Welp 1960: 7; Worthen 1858; Lees 1916; Miller 1901; Beyer 1896; Tilton 1896).

Overlying these formations are Pleistocene glacial and loess deposits as well as recent alluvium. North of the city of Des Moines, in the region of Saylorville Lake, is the Bemis moraine, which marks the southernmost penetration of the Des Moines Lobe of the Cary stadial about 14,000 years ago (Ruhe 1969: 54). On this young till surface are soils of the Clarion-

Nicollet-Webster soil association which reflect an original vegetational cover varying from grass prairies to sedge prairies to forested areas (Oschwald et al 1965: 28; Prior 1976: 41-44). This situation contrasts sharply with the setting south of the city of Des Moines, where the Des Moines River incises the Southern Iowa Drift Plain, a surface consisting of Wisconsin loess on a weathered Kansan till. The major soils which have developed there consist of the Clinton-Keswick-Lindley association and are indicative of an original forest and mixed forest-prairie vegetational cover (Oschwald et al 1965: 45, Figures 13 and 14; Prior 1976: 45-48).

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

The history of archaeological investigations in the Saylorville Lake project has been summarized extensively elsewhere and need not be elaborated here (cf. Gradwohl 1974; Osborn and Gradwohl 1981: 3-6). Since the present specific project is based on those previous studies, however, a short summary at this point will direct interested readers to the relevant publications and research literature disseminated over the past twenty years.

An initial survey of the Saylorville Lake project was conducted in 1962 by the Office of the State Archaeologist at the University of Iowa under a cooperative agreement with the National Park Service (Ashworth and McKusick 1964). A supplementary survey was undertaken by the Smithsonian Institution River Basin Surveys during July of 1966 (Brown 1966). Between 1967 and 1970, Iowa State University and the National Park Service conducted salvage archaeological operations under several cooperative agreements. Preliminary data were summarized in a paper delivered at the Society for American Archaeology in 1969 and subsequently revised for publication (Gradwohl 1974). The contract completion report for this work was presented to the National Park Service in 1975 (Gradwohl 1975).

Between 1973 and 1976 an extensive archaeological survey of the Saylorville Lake project was accomplished by Iowa State University under cooperative agreements with Iowa's Division of Historic Preservation and the Rock Island District of the U.S. Army Corps of Engineers (Gradwohl and Osborn 1973a, 1973b, 1974, 1975a and 1976). During 1974 and 1975 emergency archaeological investigations were conducted at two sites by Iowa State University under the auspices of a contract with the National Park Service (Osborn and Gradwohl 1977, 1980; Osborn, Gradwohl and Thies 1978). Between 15 April and 30 June 1975 the U.S. Army Corps of Engineers and Iowa State University undertook archaeological investigations in the lower portion of Saylorville Lake. The results of those activities were summarized in Contract Completion Report, Stage 1 submitted to the U.S. Army Corps of Engineers in October 1975 (Gradwohl and Osborn 1975b). Continued field work at Saylorville Lake was undertaken by Iowa State University under a cooperative agreement with the U.S. Army Corps of Engineers between 1976 and 1979, and the results of those investigations were reported in the Saylorville State 2 Contract Completion Report (Osborn and Gradwohl 1981).

STATEMENT OF PURPOSE

During the summer of 1980 the U.S. Army Corps of Engineers and Iowa State University negotiated Contract #DACW25-80-C-0042 calling for testing of fifteen "Priority I" archaeological sites in Polk, Dallas, and Boone counties: 13PK132, 13PK265, 13DA6, 13BN14, 13BN27, 13BN30, 13BN35, 13BN38, 13BN40, 13BN102, 13BN114, 13BN123, 13BN168, 13BN182, and 13BN203. Subsequently it was determined that site 13BN35 had not been acquired as part of the U.S. Army Corps of Engineers' fee land. Therefore site 13BN106 was substituted for 13BN35. The purpose of this discussion is to fulfill the stipulations of the Scope of Work for Contract #DACW25-80-C-0042 (see following paragraph and Appendix F). As specified in the Scope of Work, the discussion for each site includes a summary of the environmental context of the site, previous investigations, a statement of the research objectives, a statement of the methodology employed, the research results, a discussion of the project impact, and recommendations for further work. The significance of the resulting information in relationship to the prehistory and early history of the central Des Moines Valley is reviewed in a concluding section. Particular attention is focused on the six research questions or topics as more fully elaborated in the Scope of Work (refer to Appendix F). In some instances, the fifteen sites investigated appear to have the potential for investigating still other research topics. Those potentials are also discussed in the summaries for each individual site.

SCOPE OF WORK

The Scope of Work for the present contract is provided in Appendix F. In summary, the Scope of Work calls for the scientific testing of fifteen archaeological sites to determine their status vis-a-vis potentials for answering six research questions about the prehistory of the central Des Moines River Valley and the interests of cultural resource management in the Saylorville Lake project. These research questions, briefly stated, are: (1) the relationship of Great Oasis and Oneota manifestations in the central Des Moines River Valley, (2) the nature and extent of Late Woodland manifestations in the region, (3) the relationship between Great Oasis and Late Woodland manifestations in central Iowa, (4) the nature of Middle Woodland components in the central Des Moines River Valley and the relationship of these manifestations to Havana sites in the Mississippi River Valley, (5) the evidence for horticulture associated with Woodland and/or post-Woodland manifestations in the region, and (6) the nature of prehistoric ecological systems and the relationship of changing environmental conditions to the culture historical sequence in the valley. Given the time frame for the investigations and the available funding, the testing program was to employ rapid recovery techniques, including the use of power machinery, to obtain information on potential classes of data for exploring the above-stated topics and additional questions concerning the human occupations of the central Des Moines River Valley (see Appendix I, letter dated 29 April 1980).

PARTICULAR GEOMORPHOLOGICAL SETTINGS OF THE INVESTIGATED SITES

The specific geomorphological and inferred paleoecological settings of the sites covered in the present contract are summarized in the following sections dealing with each of the fifteen sites. More detailed data are presented in tabular form and soil descriptions in Appendix C. As an initial overview, however, some general observations can be made. Upland ridge positions are represented by 13PK132 and 13PK265. Soils at these locations are defined as Hayden loam, LeSeuer loam, and Lester loam. All of these soils are derived from a parent material of glacial till and reflect a native vegetation of forest and mixed forest and prairie. Site 13DA6 is located on a high outwash terrace on soils variously described as O'Neill fine sandy loam, Salida series, and Wadena series. These soils were derived from glacial outwash gravels and alluvium and formerly supported a ground cover of mixed trees and prairie grasses.

Four sites (13BN14, 13BN27, 13BN40, and 13BN106) are situated on alluvial fans superimposed on riverine terraces or benches. At 13BN14 and 13BN27 the soils are mapped as Moingona loam, Sattre loam, and Hanlon series, all of which developed from alluvial parent materials and once supported a forest or mixed prairie and forest vegetation. Sites 13BN40 and 13BN106 are similarly positioned but are on soils mapped as Terril series and Coland clay loam in addition to Moingona loam.

The remaining eight sites (13BN30, 13BN38, 13BN102, 13BN114, 13BN123, 13BN168, 13BN182, and 13BN203) are found on low to intermediate riverine terraces. Alluvial parent materials at these sites account for soils mapped as Wadena loam, Calco silty clay loam, Buckney fine sandy loam, and Spillville loam in addition to the aforementioned Moingona loam, Hanlon series, Terril series, and Coland clay loam. Dickman fine sandy loam, a soil derived from eolian sand, is also noted at 13BN30, 13BN114, and 13BN168. All of these soils are thought to have supported an original forest or mixed forest and prairie vegetational cover.

SCHEDULE OF INVESTIGATIONS

The notice to proceed on the field investigations of twelve sites in the present contract was issued on 25 August 1980 (see Appendix I). Still pending were some negotiations regarding permission to cross privately-owned lands to gain access to certain Priority I archaeological sites within the Federal acquisition zone as well as arrangements to off-set the damage to crops being grown on some sites under leasing contracts with the Iowa Conservation Commission. Preliminary field maps and other laboratory preparations were completed during September, while baseline geomorphological tests were undertaken, as weather and ground conditions permitted, during October, November, and December. Excessively dry soil conditions and un-harvested crops inhibited the movement of power machinery into the sites and insertion of the hydraulic soil probe into the soil. The initially-proposed scheduling of site investigation was further modified to accommodate construction schedules at 13PK265, at which archaeological testing

was completed in November of 1980, and the cropping leases which the Iowa Conservation Commission had with farmers in the area. Given these principal factors, all of the field work could not be completed during the fall of 1980 prior to the onset of snow, frozen soil, and other winter conditions.

Field work was resumed in March 1981 and proceeded as weather conditions permitted (refer to Appendix H). The schedule of field work at specific sites was arranged to accomodate new cropping leases issued by the Iowa Conservation Commission and the specific spring planting schedules of individual farmers. An attempt was made, via almost daily communications with personnel at the Iowa Conservation Commission, to hold crop damage to a minimum. An extension of the time allowed for field investigations was requested in March and subsequently finalized in May. Following several telephone conversations, the formal notice to proceed at site 13BN123 was forwarded in June. Field investigations undertaken in the contract were completed in the latter part of June.

PLAN OF PRESENTATION

The main body of this report consists of summary discussions for each of the fifteen archaeological sites stipulated in Contract #DACW25-80-C-0042. The presentation of these units is organized roughly from south to north within the Saylorville Lake project -- sites in Polk County, then Dallas County, and finally Boone County. Sites in Boone County are arranged in numerical sequence for reporting purposes (see Figure A-1 for general location of sites covered in the present contract). Following these sections, there is a general conclusion discussion. Included in that section are a brief summary of knowledge about the archaeology of the central Des Moines River Valley prior to the present contract, a discussion of the contributions made under this contract to the understanding of the culture history of the region, over-all recommendations for further work at the archaeological sites tested under this contract, and some final observations on the work accomplished. In that concluding section the fifteen archaeological sites are prioritized according to their apparent potentials for investigating the general research questions posed in the Scope of Work. The list of references cited appears at the end of the main text. Many of the data in this volume are presented in a summary fashion and in a tabular form for quick and general reference. To avoid repetition of certain technical details in each site description, however, other data -- pertaining, for example, to soils, geomorphology, lithic tool classification, and ceramic ware analysis -- are elaborated in sections of the Appendix volume required as part of the present contract.

The separately-bound volume contains appendices which present restricted site locational information as well as technical reports supplementary to the main text. These appendices include: (A) site provenience maps, (B) legal proveniences of sites, (C) supplementary technical studies and analyses -- lithic artifact categories, ceramic wares, soils, geomorphology, analysis of human skeletal remains, analysis of obsidian artifacts, and radiocarbon assays of charcoal, (D) location of artifact storage, (E) the Memorandum of Agreement for the Saylorville Lake District, (F) Scope of Work, (G) field strategy and research design, (H) crew lists, and (I) coordination and review correspondence.

TESTING OF ARCHAEOLOGICAL SITES

13PK265

Environmental Context of Site 13PK265

Site 13PK265 was located on a bluff top ridge immediately above the right bank of the Des Moines River in Polk County, Iowa. This locus is now on the margin of Saylorville Lake and is 4.6 kilometers upstream from the Saylorville Dam (see Figure A-2). The site's position lies between 925 and 950 feet above mean sea level and covers an area of 4 to 5 acres (1.5 to 2 hectares). The site is bounded on the north and south by relatively steep ravines, on the east by the bluff escarpment, and on the west by the gently rolling upland surface (Figure A-3).

The soil on which the site occurred is mapped as Hayden loam, 5-9% slopes, moderately eroded (McCracken 1960: 54-55 and Sheet 5). Such soil is a Cary glacial loam till which was formed under a forest vegetation. This soil tends to be well drained and, without surface cover, can be subject to erosion.

Within the historic period the site area was a cultivated field. After Federal acquisition of the property the field was allowed to lie fallow and saplings, bushes, and grasses reclaimed the area. In 1976 the Iowa National Guard utilized the former field for military tank practice, and in the process of operating the tanks the young trees and secondary growth which had taken over the field were ripped up and the land surface was scarred and compacted.

Previous Investigations at Site 13PK265

Site 13PK265 was located on 4 August 1976 during monitoring activities conducted by the Iowa State University Archaeological Laboratory under a contract with the Rock Island District of the U.S. Army Corps of Engineers. At that time the ground cover conditions were being considerably altered by the concentrated operation of military tanks in the area (refer to Plates 1 and 2), and prehistoric cultural materials were found on the surface of the disturbed topsoil.

Early archaeological surveys of the Saylorville Lake area were limited in scope and neither of the two reports from these surveys (Ashworth and McKusick 1964, Brown 1966) listed findings for the specific location of 13PK265. Then, in 1973, the U.S. Army Corps of Engineers contracted with Iowa State University to conduct an intensive archaeological survey of Reconnaissance Units 2 and 4 within the Saylorville Lake area. This survey was to be conducted in the same manner as that completed for Saylorville



Plate 1. Ground Conditions at Site 13PK265 at the Time It Was Discovered by Archaeological Monitoring in August of 1976. View is to the east



Plate 2. Iowa National Guardsmen Using a Military Tank During Practice Maneuvers over Site 13PK265. View is to the west northwest

Reconnaissance Units 1 and 3 in 1973 in a portion of the lower reservoir under the auspices of a contract between the State Historic Preservation Program and Iowa State University (cf. Gradwohl and Osborn 1973a: 15-20). By 1973 the uplands within Site Survey Unit 22, that portion of Reconnaissance Unit 2 in which site 13PK265 was later located, were found to be densely tree covered and the ground surface was obscured by vegetation (Gradwohl and Osborn 1974: 55, 73). Therefore, site 13PK265 lay undetected at that time.

A few prehistoric sites were found in nearby upland fields under cultivation at the time of the 1973 survey, underscoring the potential for sites to be found in adjacent areas masked by vegetation. Therefore, since Site Survey Unit 22 as well as other SSUs to the south were scheduled for future recreational development, it was recommended that any construction activity significantly altering the ground cover conditions in this vicinity should be closely monitored by a professional archaeologist (Gradwohl and Osborn 1974: 73-74). It was during such monitoring in 1976 that the presence of site 13PK265 was discovered. Initially a stemmed projectile point (Figure 1, A), a bifacial core (Figure 2,D), shatter, and several waste flakes were recovered. Continued monitoring in the fall of 1976 and into 1977 produced a small notched projectile point (Figure 1,C) and additional nondiagnostic lithic artifacts as well as two pieces of historic stoneware. No visits were made to the site for archaeological purposes again until 1980 just prior to the initiation of testing at the site. At that time a medium-sized lanceolate projectile point with straight base (Figure 1, B) and more nondiagnostic lithics were found within bare spots and areas of animal disturbance not covered by the otherwise heavy vegetation (refer also to Table 1).

Statement of Research Objectives for Site 13PK265

Beyond immediate mitigative reasons for testing 13PK265 because of recreational development planned for and later constructed on the site, other research objectives were considered in regard to the site in understanding more fully the culture history of the central Des Moines River Valley. Few upland sites within the Saylorville region have been intensively explored, largely because the more general adverse impacts of permanent inundation, shoreline degradation, and intermittent flooding resulting from the operation of Saylorville Lake occur at lower elevations. Therefore, expediency ruled that sites at the lower elevations would likely be the primary ones investigated. The testing of 13PK265 presents an opportunity to observe and record the nature of a prehistoric habitation area on an upland surface. Secondly, the diagnostic artifacts recovered from the site's surface suggest that 13PK265 may represent a habitation of Archaic cultural affiliation; if this assumption is correct then the absence of pottery in the surface collections is not surprising. Archaic sites in the central Des Moines River Valley are not yet documented in primary context nor are there any radiocarbon dates to specifically place a temporal range on the occurrence of Archaic sites in the region (Gradwohl 1974: 93). Site 13PK265 could potentially provide some key data to this lacuna in the sequence of culture history in central Iowa.

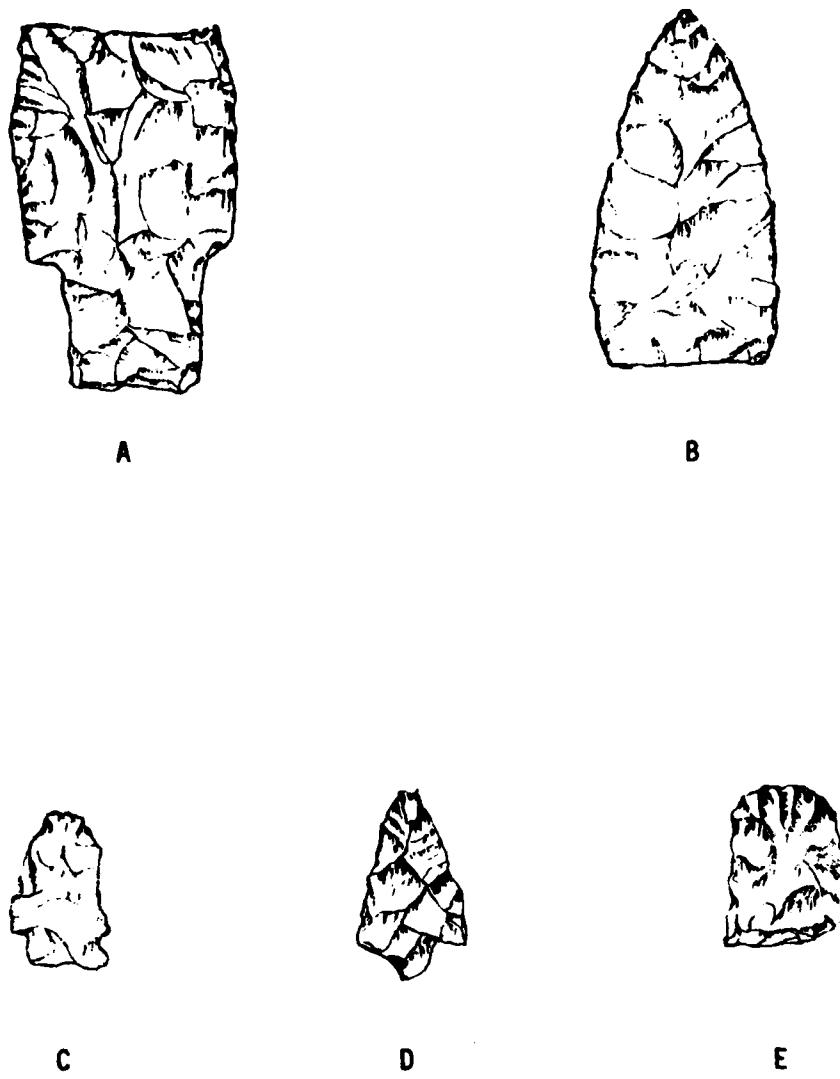


Figure 1. Selected Chipped Stone Tools from 13PK265. (A) Parallel stemmed projectile point with straight base #1, (B) Large plain triangular projectile point with straight base #27, (C) Small side or corner notched projectile point #13, (D) Projectile point tip #31; (E) End scraper #22. D is from the base of the plowzone within the test square; all the rest are from the surface.
Actual size

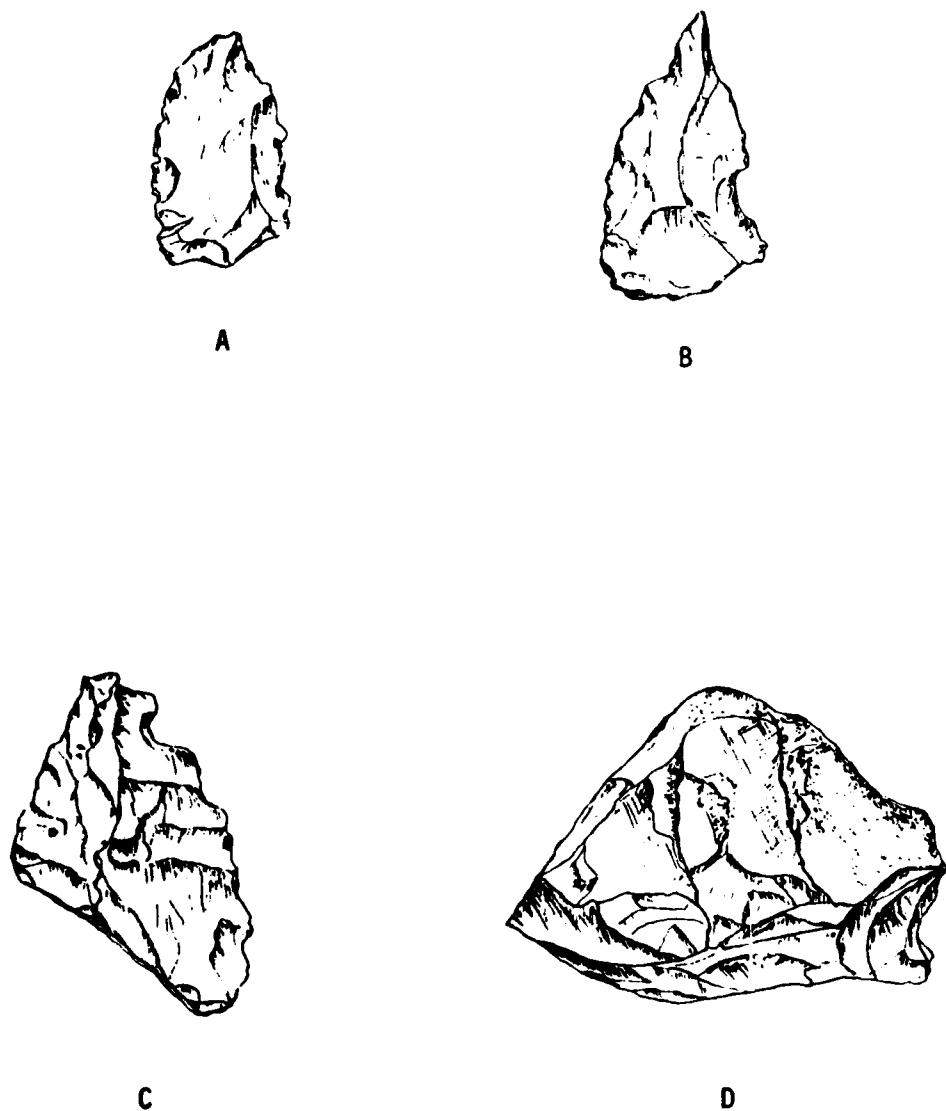


Figure 2 . Selected Bifaces and Core from 13PK265. (A) Thin biface or projectile point fragment #15; (B-C) Thin biface fragments #30 and #20, respectively, (D) Bifacial core #6. B is from the base of the plowzone within the scrape; all the rest are from the surface. Actual size

	Total	Materials Recovered Prior to Testing	Materials Recovered During Testing	Materials Recovered After Construction Had Begun	Surface disturbed to varying depths by construction and Nat'l Guard tanks	Ap or plowzone within test square and scrape (0-0.45 ft. or 0-13 cm.)	A2/B1 soil horizon in test square (0.45-1.0 ft. or 13-30 cm.)
PREHISTORIC ARTIFACTS							
<u>Chipped Stone</u>							
Lanceolate projectile point	1	1	-	-	1	-	-
Stemmed projectile points	3	2	-	2	3	-	-
Notched projectile points	2	1	-	1	2	-	-
End scrapers	3	2	-	1	3	-	-
Retouched flake/scrapers	2	1	-	1	2	-	-
Thin bifaces (including point tips)	12	2	2	8	10	1	1
Thick bifaces	3	2	-	1	3	-	-
Retouched flakes	12	4	-	4	12	-	-
Utilized flakes	5	1	-	4	5	-	-
<u>Chipped Stone Source & Waste Materials</u>							
Cores	2	1	-	1	2	-	-
Shatter chunks	25	10	1	14	24	-	1
Waste flakes	238	107	1	130	237	1	-
<u>Ground Stone</u>							
Hematite axe fragment	1	-	-	1	1	-	-
Worked hematite chunks	4	-	3	1	1	-	3
<u>Unworked Stone Source Materials</u>							
Unworked hematite	5	-	2	3	3	-	2
Chert and diorite cobbles	2	-	-	2	2	-	-
HISTORIC ARTIFACTS							
<u>Ceramics</u>							
Ironstone vessel fragments	3	-	-	3	3	-	-
Stoneware vessel fragments	2	2	-	-	2	-	-
	325	135	9	181	316	2	7

Table 1. Tabular Summary of Archaeological Materials Recovered from Site 13PK265. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.

Statement of Methodology at Site 13PK265

To accommodate the needs of the U.S. Army Corps of Engineers-Rock Island District, and contrary to an earlier testing strategy in which testing would generally progress from the most northern of the Priority I sites in the Saylorville Lake project to those in the south, site 13PK265 was the first to be tested under this contract. This was expedient because of the imminent construction of the Acorn Valley Campground which was scheduled to begin in the fall of 1980. Therefore, archaeological testing was begun there on 6 October 1980 with the use of a truck from the USDA Soil Survey mounted with a hydraulic soil probe to take soil cores at the site. These cores were procured and analyzed by Thomas Bicki, soil scientist with the Department of Agronomy, Iowa State University. It was on his recommendation that the original plan to take systematically-dispersed cores over a large area of the site was abandoned. He felt that one or more well-placed transects of probes placed across any of the sites on the basis of the land forms present would provide as much or more useful information as would a pattern of gridded probes; he also felt this procedure would be the most time and cost effective. An attempt was made to use probes 4 inches (10 cm.) in diameter to increase the chances of finding cultural material, if present, along with the soils information. This proved to be impossible because dry soil conditions would not allow such a large bore to penetrate the ground to a sufficient depth. Therefore, a 2-inch (5-cm.) probe was used at 13PK265. A transect of nine probes was placed generally across the east/west axis of the site (refer to Figure 3) along the downsloping ridge; these were taken to depths ranging from 3.0 to 4.8 ft. (92-147 cm.)--well into the C soil horizon. The probes were spaced at somewhat irregular intervals in order to miss trees and larger shrubs which could not easily be cut down or driven over by the truck. The location of each probe was recorded and mapped with transit and stadia using an origin located in the western fenceline of the field. This alignment lay over what was judged to be the most stable portion of the ridge given the earlier disturbance by plowing and the later earthmoving and compaction by the military tank. A tenth probe was placed on the sideslope north of the transect for control purposes. Soil profile data from the probes are presented here in Appendix C. Based on the data gathered it seemed that further testing procedures would be most productive near Probes #6, 7, and 8 since this area had suffered the least disturbance and the profiles there possessed the thickest intact A soil horizons.

On 18 November 1981 a backhoe was brought to 13PK265 and a trench was dug perpendicular to the probing transect, beginning 25 ft. (8 m.) due north of Probe #7 (refer to Figure 3). The trench was 57 ft. (18.7 m.) long and was dug to a depth of 2 ft. (61 cm.) for a distance of 12 ft. (3.9 m.). From that point north the trench was extended for 45 ft. (14.8 m.) and taken to a depth of 4 ft. (112 cm.). Three soil profile descriptions were made along the length of the trench at three distinct points (refer to Appendix C). Soil samples were taken from one of these profiles for pH testing in the laboratory. No cultural materials were discovered during the trenching or during careful scrutiny of the trench walls after the trench was completed.

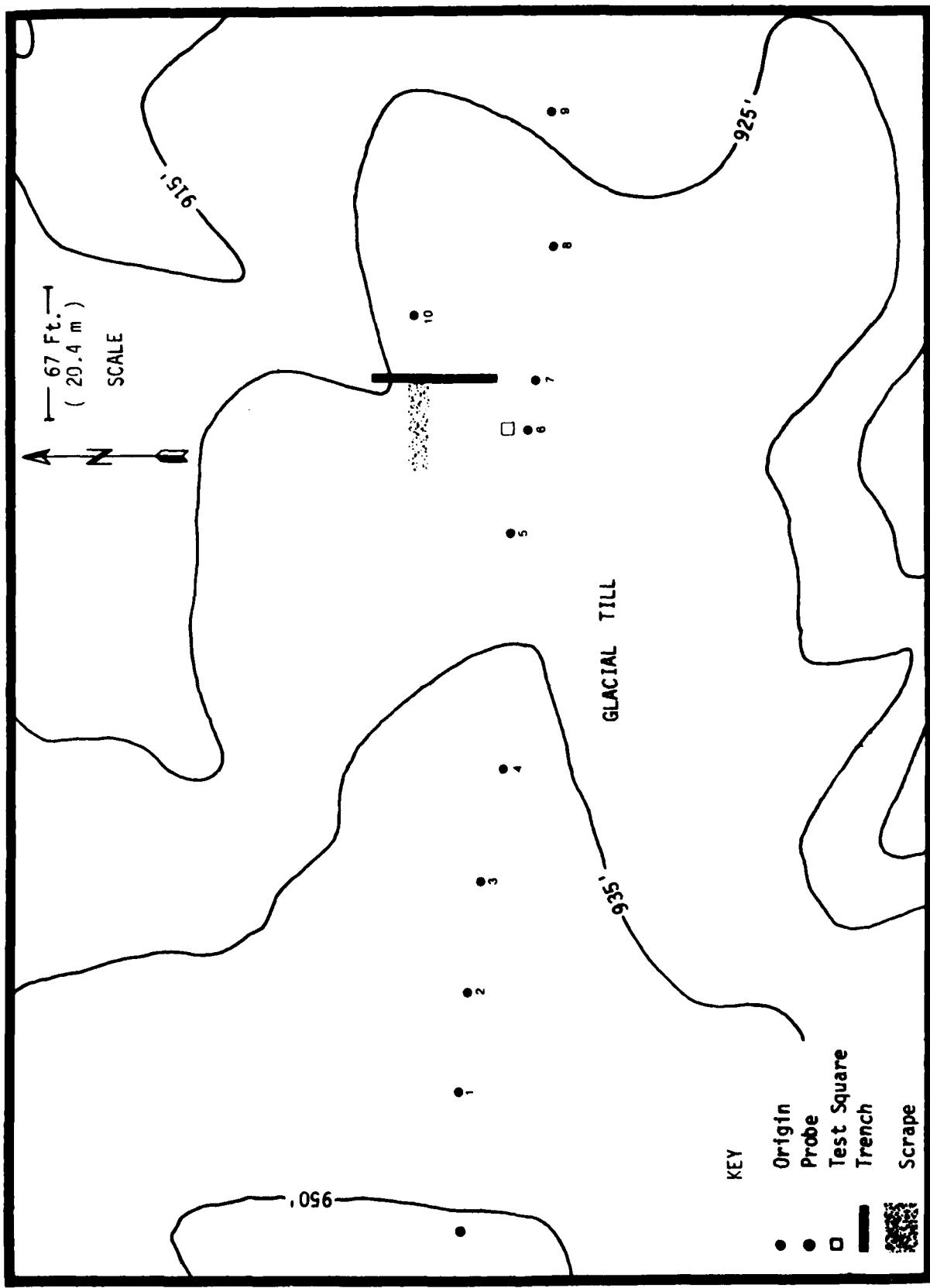


Figure 3. General Geomorphology and Placement of Soil Probes, Trench, Horizontal Scrape, and Test Square at Site 13PK265.

It was ascertained that, in terms of soil development data, cultural deposition was impossible below the B₁ soil horizon--into the parent material of glacial till--at 13PK265. An A₂ soil horizon was found to be present below the plowzone in the trench walls, thus providing the only possible matrix within which undisturbed cultural deposition might occur. Some charcoal flecking was noted in this horizon as well as in the plowzone. On the negative side, the pH of the Hayden soil here was found to range from moderately acid to strongly acid and would not provide a suitable milieu in which organic cultural or ecofactual remains might be preserved.

The following day a 5-ft. (1.5-m.) square test square was placed immediately north of the probing transect near Probe #6 (refer to Figure 3). Fill was removed in increments by hand shovelling and was screened through a 1/2-inch mesh hardware cloth screen. The square was taken to a depth of 1.0 ft. (31 cm.) into the sterile B₁ soil horizon. The plowzone which remained was 0.4 ft. (12 cm.) deep; the A₂ soil horizon below occurred at 0.4 to 0.7 ft. (12 to 21 cm.) below surface. One waste flake was retrieved from the plowzone, and at the plowzone contact with the A₂ horizon were recovered a projectile point tip (Figure 1, D) and a piece of chert shatter. Below the plowzone in the A₂ horizon were found five hematite pieces, three of which had been worked by scratching and/or grinding (see also Table 1).

Because cultural materials were apparently present at the plowzone contact, a machine scrape using the loading bucket of the backhoe was done to remove the relatively thin plowzone overburden from an area of 360 square ft. (39 square m.) in a strip perpendicular to the trench (refer to Figure 3). The scrape was ultimately taken to the top of the B soil horizon. Hand shovel skimming was used in combination with the machine to clean off the scraped surface in increments from the base of the plowzone down. One thin biface fragment (Figure 2, B) was recovered from the scrape; however, it was difficult to be certain whether it had come from primary context below the plowzone or from the contact with the plowzone.

The sampling procedures implemented at 13PK265, and at the other Priority I sites tested under this contract, varied somewhat from those proposed in the testing strategy largely on the recommendations of both soil scientists involved with the project. Employing techniques used most often by soil scientists and geomorphologists, transects of probes were taken to provide a "cross-section" of vertical profile information across and beyond the land form upon which a given site had been found. This was done in lieu of the gridded patterns of probes which had been proposed. The latter sampling plan could also have been effective but, on the advice of the soil scientists, would have required far more time and effort than was necessary to provide the information needed. The use of a hydraulic soil probe mounted on a heavy-duty vehicle proved to be greatly more effective than manual coring. Deep cores of a sufficient diameter could be gotten in a relatively short time, and the power needed to push the probes into the soil was available--a particular requirement in the dry upland till soils and in the thick solums of the alluvial terraces and footslopes. It had been hoped that the probes

might provide direct evidence as to the presence or absence of a cultural zone or zones along the probing transect. Even in those few instances in which it was possible to obtain cores 4 inches (10 cm.) in diameter, finding definite cultural remains by this process was a rare occurrence. Such limitations in the use of probing tools for gathering archaeological test data have been noted previously by Schiffer and Gumerman (1977: 190). It was found that the soil probe information collected during the testing of Priority I sites within the Saylorville Lake project could be used to determine whether or not there was potential for finding one or more cultural deposits in a given location; generally, however, the procedure could not be used to determine for certain that such deposits do exist.

The rest of the field strategy at 13PK265 followed closely that which had been proposed. Trench depth and length were based on information gathered by probing. It was determined that no more than one trench would be required at 13PK265 because so little of the soil profile above the B soil horizon at the site remained intact. The area with least disturbance was that chosen for the one trench which was dug. Power machinery was used to remove plowzone adjacent to the trench when it was learned from the hand-dug test square that there was definitely the possibility that part of a cultural horizon remained intact below the plowzone. It was found that shovel skimming to clean the surface of the machine scrape was the most effective control to determine the presence or absence of plowzone features.

Results of Testing at Site 13PK265

Based on the cultural materials collected from the surface of 13PK265 since 1976 as well as the information retrieved by the brief testing conducted there under this contract, it appears that the site represents an Archaic or Early Woodland hunting camp and chipping station situated on a bluff top ridge overlooking the Des Moines River Valley. This determination is made on the basis of diagnostic artifacts present which include large to medium-sized stemmed and notched projectile point forms (cf. Alex 1980: 61, 68-73). The lanceolate or large plain triangular projectile point is not allied so discretely with a given cultural affiliation but would not be out of place in Archaic or Woodland contexts. Other than these projectile points, the artifact classes present at the site are composed of chipped stone tools and tool fragments presumed to have served cutting and scraping purposes, chipped stone source and waste materials, and presumed pigment sources in the form of scratched and ground hematite and unworked hematite nodules. One significant artifact class not shown to be present is ceramics, an absence which may support the Archaic cultural assignment. Charcoal flecking was noted within the sub-plowzone A soil horizon, as well as within the plowzone, and may or may not be of cultural derivation. No cultural features were defined as a result of the tests although krotovinas (filled-in animal burrows) and root channels could be seen in the scraped surfaces, indicating that soil color and texture differences, whenever present, can be detected here. The presence at the site of a cultural component earlier than the one represented by these materials is not possible because glacial till parent material directly underlies this cultural deposit. More recent

components than the one represented here are possible, but these would by now have been incorporated into the plowzone and there are no diagnostic artifacts to suggest their presence. The few pieces of historic stoneware from the surface may be attributed to early Euro-American farmsteads in the area.

Use of this area within the historic period has definitely had an impact on the prehistoric remains laid down at 13PK265. Plowing for the growing of crops had taken place here from the late nineteenth through the mid twentieth centuries and had apparently disrupted the context of the upper portion of the prehistoric cultural deposit. It was noted, however, that this plowing had been relatively shallow (refer to Appendix C) and the lower portion of the A soil horizon had remained untouched. Introduction in 1976 of heavy military machinery by the Iowa National Guard for the purpose of practice drills and test maneuvers ripped down small trees which had become established in the fallow field and generally gouged and redistributed large segments of the topsoil. Compaction of the A soil horizon also resulted from the weight and action of the machines and downslope erosion of the topsoil was accelerated. As discussed above, this most recent adverse impact to the site area prior to archaeological testing limited the choices as to where and by what procedures testing would be conducted.

Impacts of the Saylorville Lake Project on Site 13PK265

Although site 13PK265 lies well above the permanent pool and above the flood control pool limit of Saylorville Lake, development of ancillary recreational facilities has effectively destroyed this archaeological resource. Original recreational development plans (see Figure A-4) called for Acorn Valley Picnic Ground to be constructed in this portion of Recreation Area IV. The plans showed that the specific location of 13PK265, which was not discovered until 1976, would be traversed by a major road and parking lot to a turn-around on the bluff point. Water lines were to be run through the area and at least one picnic shelter was to be built there. A revised schedule for development was issued in April of 1980 showing that Acorn Valley was to be a campground rather than a picnic facility and that both the turn-around and parking lot would be constructed immediately on top of the site (Figure A-5). Instructions printed on the plans indicated that construction activities in the area of the archaeological site were not to begin "until authorized by Contracting Officer."

Earthmoving for development of the Acorn Valley Camground was started in the spring of 1981. No provisions for monitoring of this activity by archaeological personnel were made, even though such action is called for in the Memorandum of Agreement between the National Advisory Council on Historic Preservation and the U.S. Army Corps of Engineers (see Appendix E). David Gradwohl and Nancy Osborn, the co-principal investigators of the archaeological project for Saylorville, were in the lower Saylorville area on 7 May 1981 and stopped by the Acorn Valley development to check on the progress of construction there. It was discovered that grading for the road through the campground had already taken place across 13PK265 down to and into the underlying glacial till. Prehistoric lithic artifacts could be seen in the roadway, in the fill berms along each side, and in the machine tracks

over the rest of the site area. Materials collected by the archaeologists at this time (refer to Table 1) more than doubled the total number of items known previously from the site. Some of these materials were found just east of the fenceline formerly thought to have been the site's westward limit. These finds were reported to Roy Eichhorn, Corps archaeologist at the Rock Island District office, on 13 May 1981 as part of a monthly status report. The diagnostic projectile points recovered at this time, as well as the other artifacts present, seem to corroborate earlier assumptions from the testing results about the probable cultural affiliation and type of site represented at 13PK265. It should be noted that the possibility exists for construction workers or other members of the public visiting the area during or following construction to have also found cultural artifacts and to have retained these items for their own enjoyment or use; this adverse impact to the general cultural resource base is the most difficult of all to measure.

Recommendations for Further Work at Site 13PK265

It seems likely that little more can be done at site 13PK265 in terms of archaeological research and data recovery since destruction has resulted from a variety of impacts over a major portion of the site. It is possible that scattered surface finds can still be gotten there, but collection activities in the area are not advised as long as it is open to the general public.

This site might have provided some significant information on early prehistoric occupation in the central Des Moines trench. The number of Archaic sites inventoried for the Saylorville area on the basis of surface survey information is limited (Gradwohl and Osborn 1973a; 69, 72; 1974: 63-64; 1975: 209-210; 1976: 288-289) and little field research beyond surface collection has been conducted in a known Archaic component in the region. The site does provide specific information on the position on the landscape this group of persons in the prehistoric past chose as a camping spot. It also gives evidence for at least one activity -- flint knapping -- which took place there. However, the full potential of what might have been known from the archaeological resources and the context in which these had been laid down at 13PK265 cannot now be realized.

13PK132

Environmental Context of Site 13PK132

Site 13PK132 is located on an upland ridge above the left bank of the Des Moines River and immediately above the confluence of Mosquito (Porcupine) Creek with the Des Moines in Polk County, Iowa (Figure A-6). The site's position lies between 910 and 930 feet above mean sea level and covers an area of 10 to 12 acres (4 to 5 hectares). A ravine draining into Mosquito Creek and a lane paralleling this ravine form the northern boundary of the site (refer to Figure A-7). Trees bordering the brow of the bluff slope and a fenceline delimit the site on the south. The eastward extent of surface finds stopped 100 feet (30 meters) or less beyond the north/south fenceline on the ridge summit, and a swale across the upland surface is the western boundary. The upland field in which the site is located has been under cultivation throughout the historic period and, until the early 1970s, a farmstead was located near the northeastern edge of the site.

The soils upon which the site occurs have been mapped as Hayden loam, 2-5% slopes and 5-9% slopes, moderately eroded; LeSueur loam; 1-3% slopes; and Lester loam; 2-5% slopes (McCracken 1960: 54-55 and Sheet 1). Such soils are derived from Cary glacial till and were formed under forest and mixed forest and prairie native vegetation. All exhibit good to intermediate drainage. The prominent portion of the field is eroded almost to the base of the A soil horizon and the low areas have begun to fill in with slopewash. A thin mantle of loess was noted over the site but its occurrence is spotty (refer to Appendix C).

Previous Investigations at Site 13PK132

Site 13PK132 was located during field survey by personnel from the Iowa State University Archaeological Laboratory on 14 June 1968 while under contract with the National Park Service to conduct archaeological work within Saylorville Reservoir. At the time of discovery the field was under cultivation for row crops and one broad corner notched projectile point (Figure 4,F), one narrow corner notched point (Figure 4,H), a stemmed or lanceolate point fragment with a concave base (Figure 4,A), and scrapers, bifaces, worked flakes, cores, waste flakes, and unworked hematite were collected from the plowed ground. This information about the site was summarized and reported to the U.S. Army Corps of Engineers - Rock Island District in a roster of sites identified within the Saylorville Lake project as of 1973 (Gradwohl and Osborn 1973b: 19). Additional surface reconnaissance was carried out at the

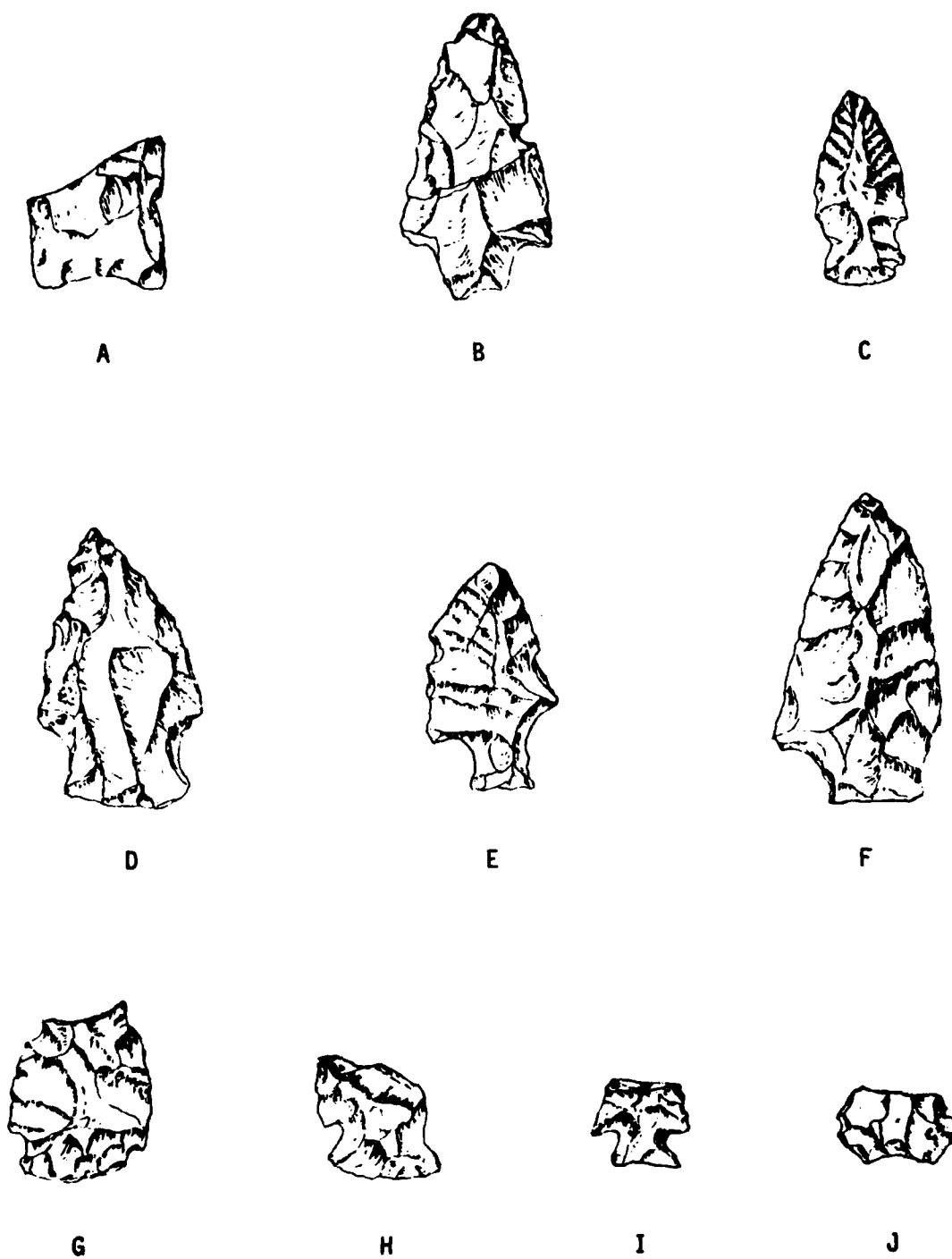


Figure 4. Selected Projectile Points from 13PK132. (A) Stemmed or lanceolate point fragment with concave base #61; (B) Contracting-base stemmed point #17; (C) Expanding-base stemmed point #49; (D-G) Broad corner notched points #18, 67, 1, and 50, respectively; (H-I) Narrow corner notched points #2 and 19, respectively; (J) Triangular point fragment with concave base #51. All are from the surface. Actual size

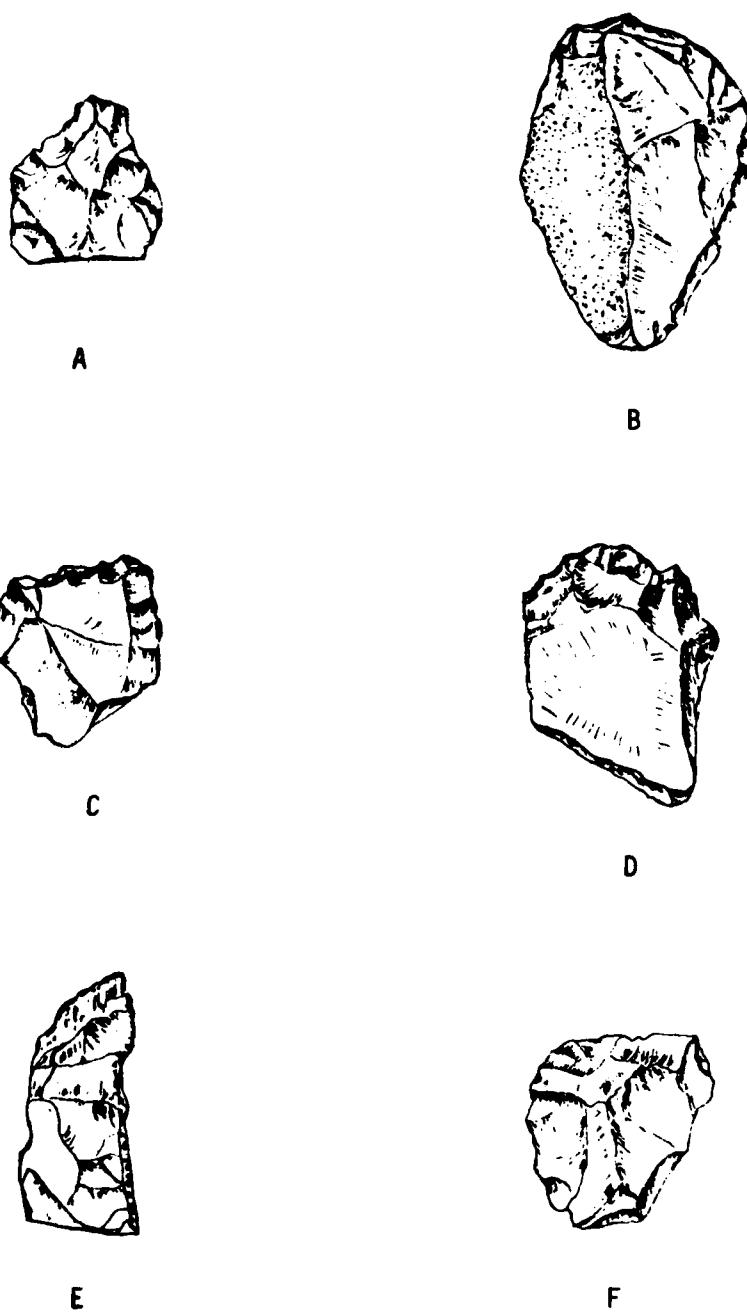


Figure 5. Selected Chipped Stone Tools from 13PK132. (A) Drill base #68, (B) Retouched flake/scraper #28, (C) Retouched flake/scraper #76, (D) Retouched flake/scraper #78, (E) Retouched flake/scraper #3, (F) Retouched flake/scraper of quartzite #10. All are from the surface. Actual size

site in July of 1974 and three more points -- one a contracting base stemmed point (Figure 4,B), one a broad corner notched point (Figure 4,D), plus a small corner notched point (Figure 4,I), as well as bifaces, worked flakes, worked hematite, and a few historic items of bottle glass, sheet iron, and brick were added to the inventory.

In 1975, during the systematic archaeological survey of Reconnaissance Unit 9 for the Corps, the site was visited once again. Further lithics, including an expanding-base stemmed point (Figure 4,C), a broad corner notched point (Figure 4,G), and a point fragment with a concave base (Figure 4,J), plus utilized flakes, cores, shatter, and waste flakes were collected. All the information gathered up to that time about the site was reported to the Corps with the suggestion that surface collections continue to be made from the site (Gradwohl and Osborn 1975: 83-84).

Sporadic visits to the site, one in April of 1976 and another in November of 1978, produced still more lithic artifacts in the form of a broad corner notched point (Figure 4,E), a fully-grooved axe (Figure 7,A), a drill base, bifaces, worked flakes, debitage, and a bone segment identified as part of a human cranium. No prehistoric ceramics are known to have come from the site. By 1978 the field had been converted to hay and surface reconnaissance proved less productive at that time as only a few waste flakes were collected.

Statement of Research Objectives for Site 13PK132

Site 13PK132 was chosen for Priority I status on the basis of the range of diagnostic projectile point styles present in surface collections from the site. The culture-historical spectrum suggested spans the Late Paleo-Indian period represented by the apparent lanceolate point base, into the Archaic/Early Woodland period as evidenced by the stemmed and broadly-notched medium-sized point forms, through the Middle Woodland period characterized by smaller notched point types, and possibly even into the Late Woodland period on the basis of the small triangular corner notched point form (cf. Alex 1980: 67-74, Ritzenthaler 1967: 17-21, 24-29, 33). The absence of prehistoric ceramics and the presence of the fully-grooved axe is also intriguing. Limited contextual information is known from Late Paleo-Indian and Archaic sites in the prairie-plains region of central North America, and no such *in situ* data has yet been investigated in the central Des Moines River Valley (cf. Gradwohl 1974: 93). It was hoped that site 13PK132 would provide the chance to explore such early prehistoric habitation(s) in more detail than had heretofore been possible; the site might also provide a spatially-controlled occurrence of successive prehistoric occupations from the Late Paleo-Indian period into Late Woodland times. Since one of the research questions specifically addresses the relationship of Late Woodland manifestations in the central Des Moines Valley to those found elsewhere in the prairie-plains region, any data which could be derived from 13PK132 on this cultural affiliation could prove to be significant.

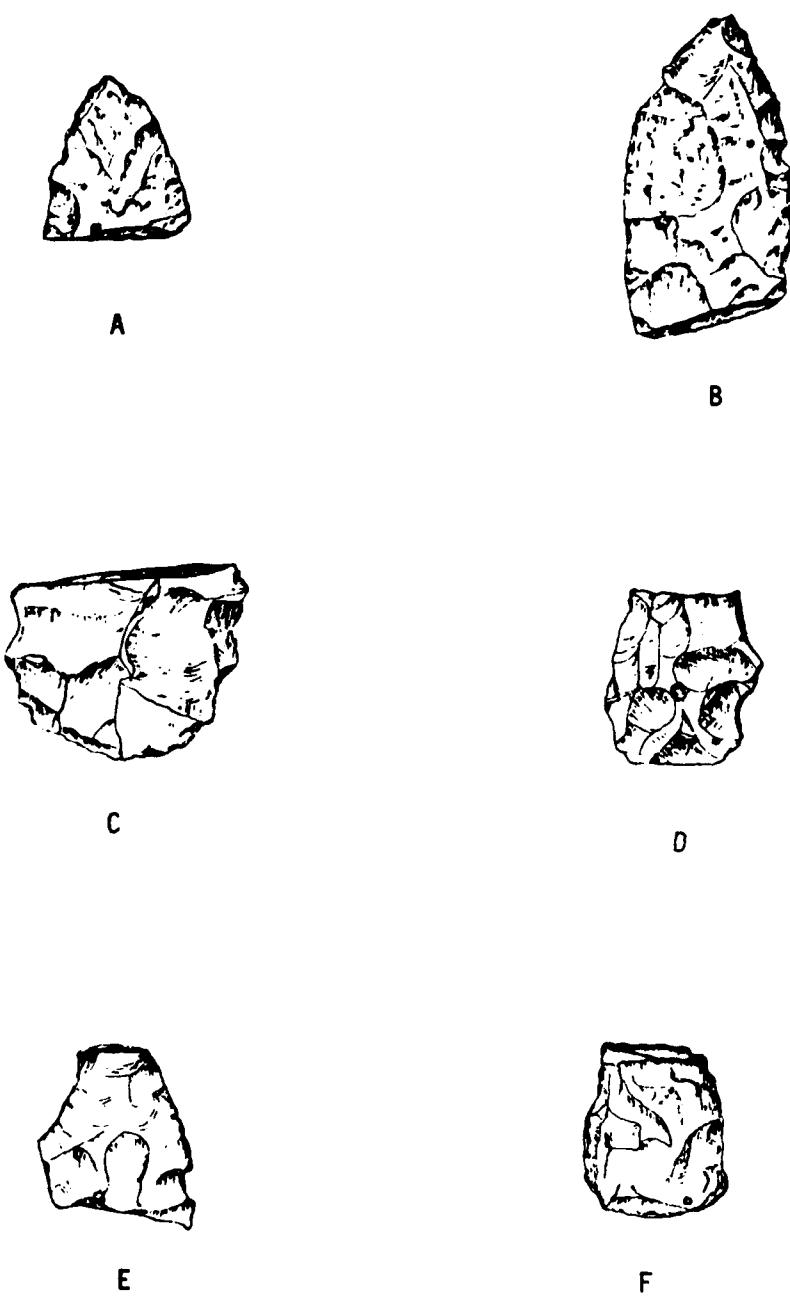


Figure 6. Selected Thin Bifaces from 13PK132. (A) Biface tip #6, (B) Biface #65, (C) Biface fragment #75, (D) Biface fragment #98, (E) Biface fragment #71, (F) Biface fragment #5. D is from Test Square #2; all the rest are from the surface. Actual size

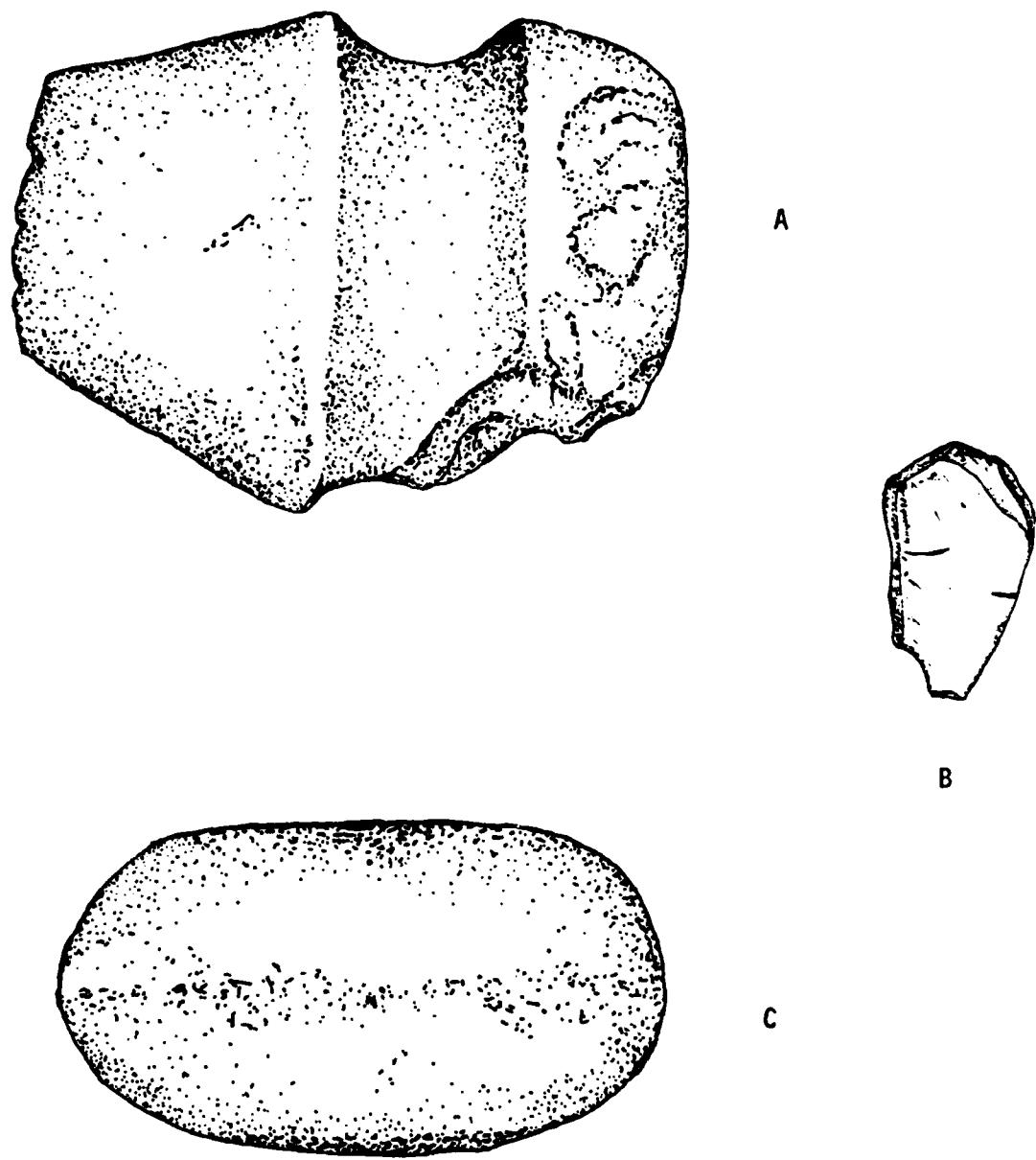


Figure 7. Ground Stone Artifacts from 13PK132. (A) Fully-grooved axe #85, (B) Scratched and ground hematite #29, (C) Granite hammerstone #93. All are from the surface. Actual size

Statement of Methodology at Site 13PK132

By the fall of 1980 the field in which 13PK132 is located was still in alfalfa hay; however, since the last cutting for the year had been taken it was possible for archaeological testing to commence there by 6 October 1980, at which time solid-core probing with the hydraulic probe truck was done. Seven probes, each 2 inches (5 cm.) in diameter, were made along an east/west transect across the gently sloping field (refer to Figure 8). Extremely dry soil conditions would not allow use of the 4-inch (10-cm.) probe, and even some difficulty was experienced in obtaining the smaller cores. The location of each core taken was recorded using a transit and stadia with a working origin established at the highest point in the field at the east end of the transect. Two additional probes were made on the knoll near this point for control purposes (Figure 8).

From the data gathered it was ascertained that considerable downslope erosion had occurred over a long period of time at the site, suggesting that many of the artifacts recovered from the surface had not only been dislodged from context by the plow but had likely been carried downslope from their original loci as well (refer to Appendix C). It was suggested that since the most stable area was the knoll summit, further archaeological testing would probably be most productive there. The Hayden soils at the site tested out to be moderately acid to strongly acid--an inimical environment for the preservation of organic ecofacts and artifacts. Higher chances for preservation of such remains exists in the less acid and more poorly drained soils in the swales at the site, but the cultural materials present in these depressions are likely to be out of original context. Surface collection made at the time probes were taken produced still more lithic cultural debris.

Testing at 13PK132 was not resumed until 2 June 1981 because other Priority I sites were being tested in the interim and the cropping conditions at 13PK132 permitted tests to be conducted there late in the planting season. By this time Thomas Bicki was no longer available as geomorphological and soils consultant, so Donald Wysocki, also a soil scientist with the Department of Agronomy, Iowa State University, agreed to take on that role. One short backhoe trench was dug on the summit of the knoll adjacent to the working origin, and to supplement information gotten from the earlier cores four short backhoe trenches were placed along the east/west axis of the site and parallel to the probing transect (see Figure 9). Each was less than 10 ft. (3 m.) in length and varied in depth from 1.5 to 6 ft. (46-183 cm.) depending upon the depth of underlying sterile parent material deposits. In addition, four longer (10-28 ft. or 3-9 m.) trenches, oriented north/south, were set out equidistantly over the land form surface and off of the probing transect (refer to Figure 9). Sampling techniques were governed largely by the prevalent soil conditions. Machine scraping of the plowzone from the hard erosional surface was deemed impractical, and seven 5-ft. (1.5-m.) hand-dug test squares spaced out over the site had to be dug with the aid of pick axes to break up the hard soil. All were dug to impervious glacial till or to loess

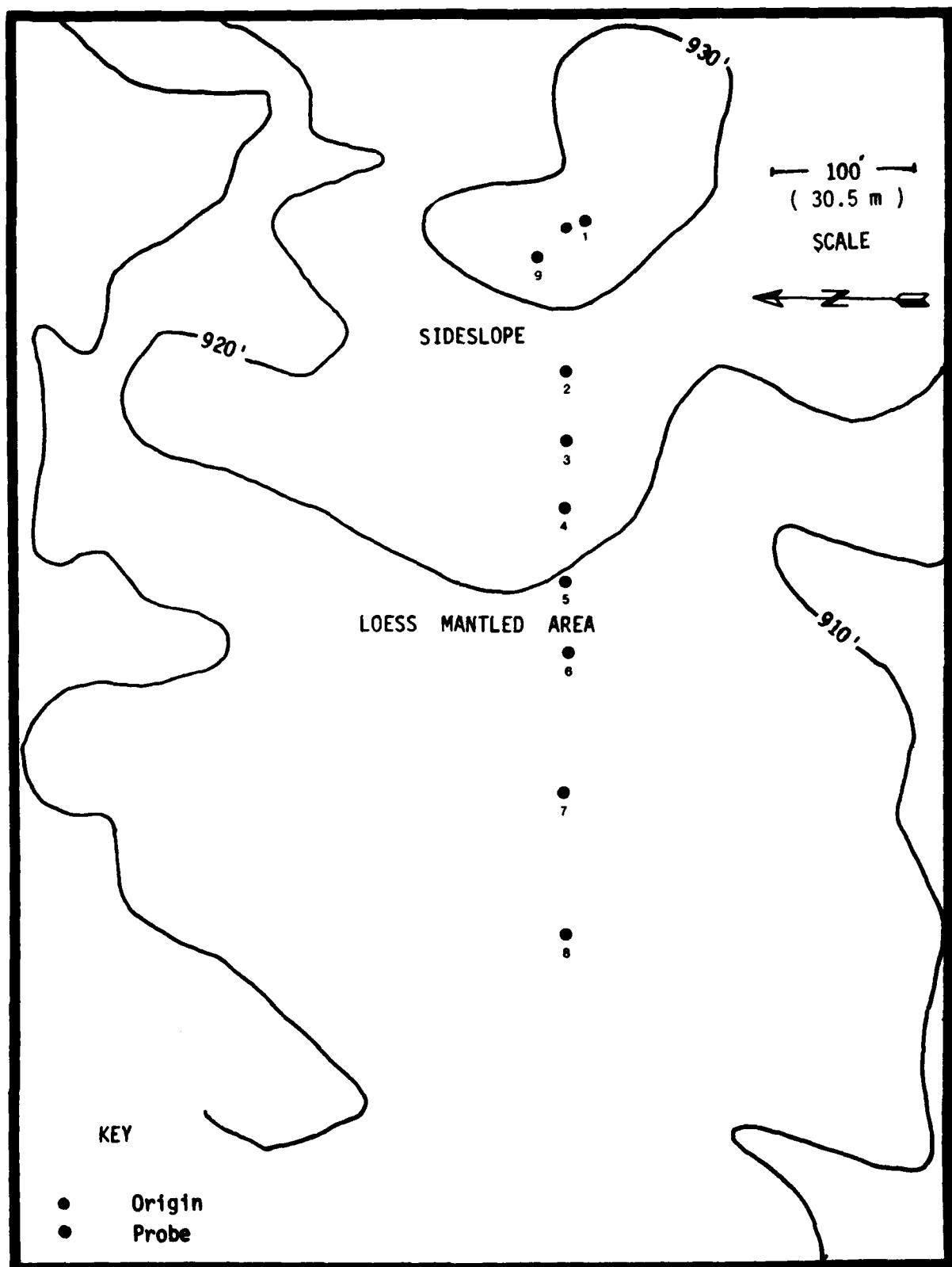


Figure 8. General Geomorphology and Placement of the Soil Probing Transect at Site 13PK132.

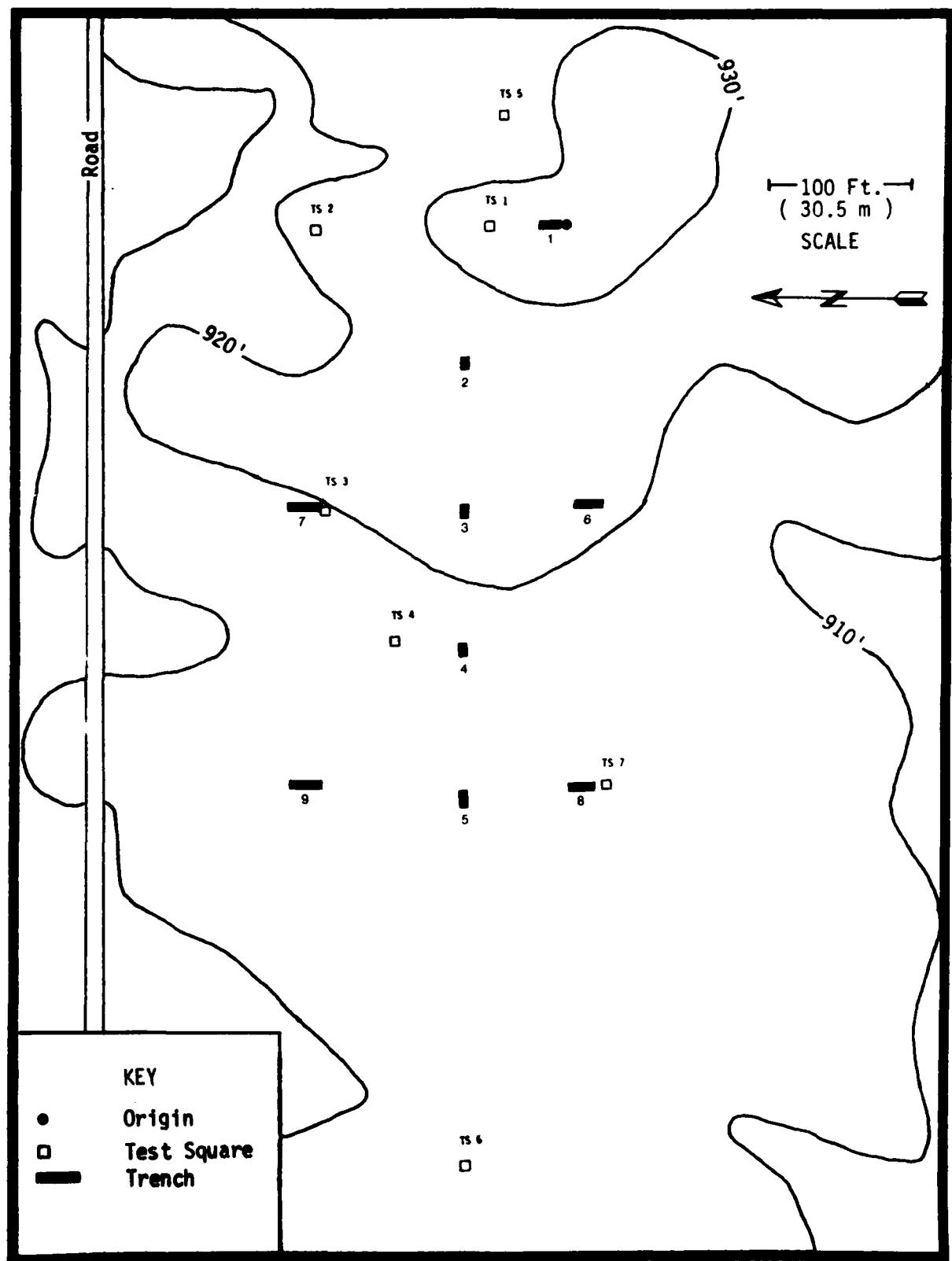


Figure 9. Placement of Trenches and Test Squares at Site 13PK132.

material which occurred at a depth of 1.4 ft. (43 cm.) or less. The fill from each square was sifted through 1/2-inch mesh hardware cloth screens. Two waste flakes were found below the plowzone between a depth of 0.8 and 1.4 ft. (24-43 cm.) in Test Square #4. The plowzones in Test Square #1, 2, and 5 collectively produced a few prehistoric lithic artifacts (refer to Table 2) and in addition, within Test Square #5 from the surface to a depth of 1.4 ft. (43 cm.), a total of 157 items of historic ironstone, stoneware, glass, and metal -- mostly of the late nineteenth/early twentieth century era -- was collected. Since this square had been placed just east of a former fencerow it appears that the area served as a domestic dump for the nearby farmstead which was occupied into the 1970s. A deposit of nearly 0.6 ft. (18 cm.) of wind-blown topsoil was found to have accumulated over the old plowzone in this location, accounting for the depth of deposition of these historic materials. Neither prehistoric nor historic artifacts were exposed within any of the test trenches or were observed in the unsifted trench fill. Prehistoric lithic materials were found and collected, however, from the ground surface between the trenches and square during the testing process.

Other than the major shift in approach to collecting core samples described earlier in this report, the testing procedures implemented at 13PK132 varied little from those proposed in the testing strategy. One of the hand-dug test squares was able to provide the information that some cultural material, though quite limited, could be found at the site below plowzone disturbance. Massive erosion of the topsoil and the hard, dry condition of the soil did not make mechanical scraping to the plowzone contact over a wider area to check for truncated cultural features feasible. That portion of the site thought to be most stable from the soil scientists' point of view was thoroughly explored by probing, trenching, and the hand excavation of a test square and was found to have a very shallow A soil horizon. Archaeological site 13PK248, designated in 1976, lies on the same upland interfluve to the east of 13PK132. If the prehistoric occupation of both sites are related, site 13PK248 may be located on a less-eroded portion of the same land surface and might provide the contextual information apparently lost at 13PK132.

Results of Testing at Site 13PK132

Based on the materials collected at 13PK132 during surface survey since 1968 and from the tests conducted in the fall of 1980 and late spring of 1981, it is believed that site 13PK132 represents primarily an Archaic camp and chipping station on an upland ridge overlooking the confluence of the Des Moines River and a tributary stream. Such a cultural assignment is made on the basis of the prevalent projectile point forms available for study and on the presence of a fully-grooved axe in the assemblage. The majority of the stemmed and broad or shallow notched point forms found here fall into the categories of those found in dated Early to Middle Archaic contexts at the Cherokee Sewer Site, 13CK405, in northwestern Iowa (Anderson and Semken 1980: 209-210, 216, 263). The dates received for the Early to Middle Archaic levels there

PREHISTORIC ARTIFACTS	Total	Materials Recovered Prior to Testing	Materials Recovered During Testing	Surface (formerly in row-crop cultivation and now in hay)	Ap or plowzone within test squares (including accumulated topsoil along old fencerow)	A2/B1 soil horizon in test squares (0.8-1.4 ft. or 24-43 cm.)
Chipped Stone						
Stemmed or lanceolate projectile point	1	1	-	1	-	-
Stemmed projectile points	4	4	-	4	-	-
Corner notched projectile points	4	4	-	4	-	-
Triangular point	1	1	-	1	-	-
Retouched flake/scrapers	7	7	-	7	-	-
Drill	1	1	-	1	-	-
Thin bifaces	14	12	2	13	1	-
Thick bifaces	2	2	-	2	-	-
Retouched flakes	6	6	-	5	1	-
Utilized flakes	27	26	1	27	-	-
Chipped Stone Source & Waste Materials						
Cores	12	11	1	12	-	-
Shatter chunks	47	46	1	47	-	-
Waste flakes	229	223	6	225	2	2
Ground Stone						
Fully grooved axe	1	1	-	1	-	-
Hammerstone	1	1	-	1	-	-
Worked hematite	2	1	1	1	1	-
Unworked Stone Source Materials						
Unworked hematite	3	2	1	2	1	-
HISTORIC ARTIFACTS						
Ceramics						
Decorated ironstone vessel fragments	3	-	3	-	3	-
White ware ironstone vessel fragments	59	-	59	-	59	-
Stoneware vessel fragments	31	-	31	-	31	-
Salt glazed brick	1	1	-	1	-	-
Glass						
Clear glass container fragments	6	1	5	1	5	-
Clear flat glass fragments	29	-	29	-	29	-
Glass insulator fragments	2	-	2	-	2	-

Drill	1	1	-	1	-	-
Thin bifaces	14	12	2	13	1	-
Thick bifaces	2	2	-	2	-	-
Retouched flakes	6	6	-	5	1	-
Utilized flakes	27	26	1	27	-	-
<u>Chipped Stone Source & Waste Materials</u>						
Cores	12	11	1	12	-	-
Shatter chunks	47	46	1	47	-	-
Waste flakes	229	223	6	225	2	2
<u>Ground Stone</u>						
Fully grooved axe	1	1	-	1	-	-
Hammerstone	1	1	-	1	-	-
Worked hematite	2	1	1	1	1	-
<u>Unworked Stone Source Materials</u>						
Unworked hematite	3	2	1	2	1	-
<u>HISTORIC ARTIFACTS</u>						
<u>Ceramics</u>						
Decorated ironstone vessel fragments	3	-	3	-	3	-
White ware ironstone vessel fragments	59	-	59	-	59	-
Stoneware vessel fragments	31	-	31	-	31	-
Salt glazed brick	1	1	-	1	-	-
<u>Glass</u>						
Clear glass container fragments	6	1	5	1	5	-
Clear flat glass fragments	29	-	29	-	29	-
Glass insulator fragments	2	-	2	-	2	-
Melted and/or burned glass fragments	4	-	4	-	4	-
<u>Metal</u>						
Iron cut nails	26	-	26	-	26	-
Iron wire nails and fencing staples	8	-	8	-	8	-
Miscellaneous iron fragments	15	1	14	1	14	-
<u>HUMAN OSTEOLOGICAL REMAINS</u>						
Cranium fragment	1	1	-	1	-	-
	547	353	194	358	187	2

Table 2. Tabular Summary of Archaeological Materials Recovered from Site 13PK132. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.

range from 8570 ± 200 to 5950 ± 80 B.C. The two concave basal segments may be derived from yet an earlier time, while the smaller corner notched point would be more characteristic of a Late Woodland occupation. It is similar to points found within the Late Woodland component at the Saylorvillage Site, 13PK165, located just downstream on the Des Moines River from 13PK132 (Osborn, Gradwohl, and Thies 1978: 44-53). Beyond the projectile points, the artifact classes present at 13PK132 include cutting and scraping tools of chipped stone, chipped stone source and waste material, ground and pecked stone in the form of an axe, a hammerstone used for chipped stone and/or ground stone tool manufacture, and presumed pigment sources in the form of scratched and ground hematite. The human cranial element is an apparent isolated find the significance of which is unknown. The absence of ceramics from the cultural assemblage would tend to support the hypothesis that the major component at the site is of Archaic affiliation. No cultural features were defined as a result of the tests. The dry, hard condition of the soil here hampered the horizontal exposure of areas much larger than 25 square ft. (2.25 square m.) in any given area and this may have allowed such features to go undetected. However, on the judgment of the soil scientists involved, erosion and plow action had already disrupted or removed much of the matrix which might have contained features at the site.

Sites 13PK132 and 13PK265 were the only sites located on upland positions investigated under this testing program. Like 13PK265, this site was apparently occupied relatively early in the culture-historical sequence in the Des Moines Valley. Any contextual data on Archaic occupations which can be retrieved from the region are significant since so little specific information is known at present about the settlement and subsistence systems of these peoples. The knowledge that this particular locus was chosen for a campsite is important in comparing this position on the landscape with the loci of other known sites of the period and in predicting where other such sites may be discovered in the future. However, contextual data regarding all cultural manifestations at the site appear now to have disappeared.

Impacts of the Saylorville Lake Project on Site 13PK132

Site 13PK132 lies within the Federal acquisition zone around Saylorville Lake but out of reach of either the conservation pool or the flood control pool of the lake. At present the immediate site area is under the administration of the Iowa Conservation Commission and is subleased for agricultural purposes. As such, new adverse impacts to the site are likely to be minimal as long as the alfalfa hay ground cover is maintained and public use of the area is restricted. Any changes in the ground cover conditions and/or development of facilities related to the use and operation of Saylorville Lake at the site locus would ultimately destroy what little cultural information remains at the site.

Recommendations for Further Work at Site 13PK132

At this time no further archaeological work at 13PK132 is recommended beyond continued surface collection to place as much of the available material resources as possible within the public domain for comparative research study and public information purposes. Other than this recommendation, the site appears to have lost its potential for archaeological significance.

13DA6

Environmental Context of 13DA6

Site 13DA6 is located on a high outwash terrace remnant above the right bank of the Des Moines River in Dallas County, Iowa (Figure A-8). This location is separated from the present river channel by a distance of nearly 600 meters across a low floodplain (Figure A-9). Murphy Branch, a tributary to the Des Moines, flows into the river from the left bank directly across from the site. The northern and western extents of the site are delimited by the configuration of the outwash terrace remnant; on the east this terrace limit is superimposed upon an underlying intermediate terrace and associated escarpment. The southern boundary is an abandoned railroad grade which once served nearby coal and gravel mines which were in operation in the early twentieth century. The site's position lies between 865 and 875 feet above mean sea level and covers an area of 15 to 20 acres (6 to 8 hectares). From at least the mid-nineteenth century on, this area has been under some domestic settlement plus row-crop cultivation. In the fall of 1980 extensive earthmoving took place on the floodplain immediately below the site during the construction by the Iowa Conservation Commission of duck "loafing ponds."

The soil upon which the site is located was mapped in 1926 as O'Neill fine sandy loam, a soil characteristic of a high terrace with level to gently sloping topography and with good to extreme drainage due to gravelly subsoil (Stevenson and Brown 1926: 64 and Map Sheet). More recent soils analyses conducted for the present study place the soils of the high terrace within the Salida series and those of the intermediate terrace in the south central portion of the site in the Wadena series (refer to Appendix C). The former was derived from sandy and gravelly glacial outwash and alluvial materials (refer to USDA Soil Conservation Service 1981: 73) which probably originated on the slopes and uplands of the western valley wall. The latter was formed in the loamy alluvium of a stream bench underlain by gravels (refer to USDA Soil Conservation Service 1981: 76). In this position a prominent land feature was formed when an ancient river channel cut this portion of the terrace system off from the western valley slope. The native vegetation was probably forest or a mixture of forest and prairie species.

Previous Investigations at Site 13DA6

Site 13DA6 was designated in 1964 by the Office of the State Archaeologist after the landowner reported finding many prehistoric artifacts in his field.

However, a field check by personnel from that office while the field was being plowed failed to produce any further evidence of the site (Ashworth and McKusick 1964: 11). Two years later an archaeological team from the Smithsonian Institution River Basin Surveys also checked the area but could not locate any cultural materials (Brown 1966: 16).

One year later, in April of 1967, personnel from the Iowa State University Archaeological Laboratory surveyed the area as part of archaeological investigations within Saylorville Reservoir called for by a contract with the National Park Service. At that time were collected several diagnostic prehistoric artifacts including a contracting, convex-base stemmed point (Figure 10,A), and a plain triangular point (Figure 10,G), as well as an assortment of other chipped stone tools, a hammerstone, core fragments, shatter, waste flakes, and a large selection of historic china, stoneware, glass, and metal typical of late nineteenth and early twentieth century Euro-American occupations. Further collections were made in June of 1967 and June 1968 and an abundant number of prehistoric and historic materials were added to the site inventory. The information known about the site was summarized for the U.S. Army Corps of Engineers-Rock Island District in 1973 in a roster of sites inventoried to date within the Saylorville Lake Project (Gradwohl and Osborn 1973b: 25).

On 6 May 1975 the site was included in the intensive archaeological survey of Reconnaissance Unit 10, part of a larger survey program for the upper Saylorville Lake region and undertaken by Iowa State University for the Corps. At that time very little material could be found at the site--the only prehistoric material recovered consisted of one utilized flake, a core fragment, and twenty-one waste flakes. Nevertheless, this information plus that gathered previously was presented to the Corps with the recommendation that the site be tested to learn more about the prehistoric and historic components present (Gradwohl and Osborn 1975a: 115-117).

Archaeological monitors checked the site a few times between 1976 and 1980, but the area was generally weedy and no further diagnostic prehistoric artifacts were recovered. However, bifaces, one retouched flake, one utilized flake, core fragments, shatter, waste flakes, plus a historic bead, glass bottle necks, and an iron railroad spike were added to the site inventory during this time.

Statement of Research Objectives for Site 13DA6

Primarily on the basis of diagnostic chipped stone tools reported from the surface reconnaissances conducted at 13DA6 since 1967, as well as the presence at the same locus of historic materials presumed to be domestic debris from an early twentieth-century mining community in the area, site 13DA6 was chosen for Priority I investigation status. The projectile styles available, though limited, suggest a range of prehistoric occupation at the site from Archaic/Early Woodland to Late Woodland

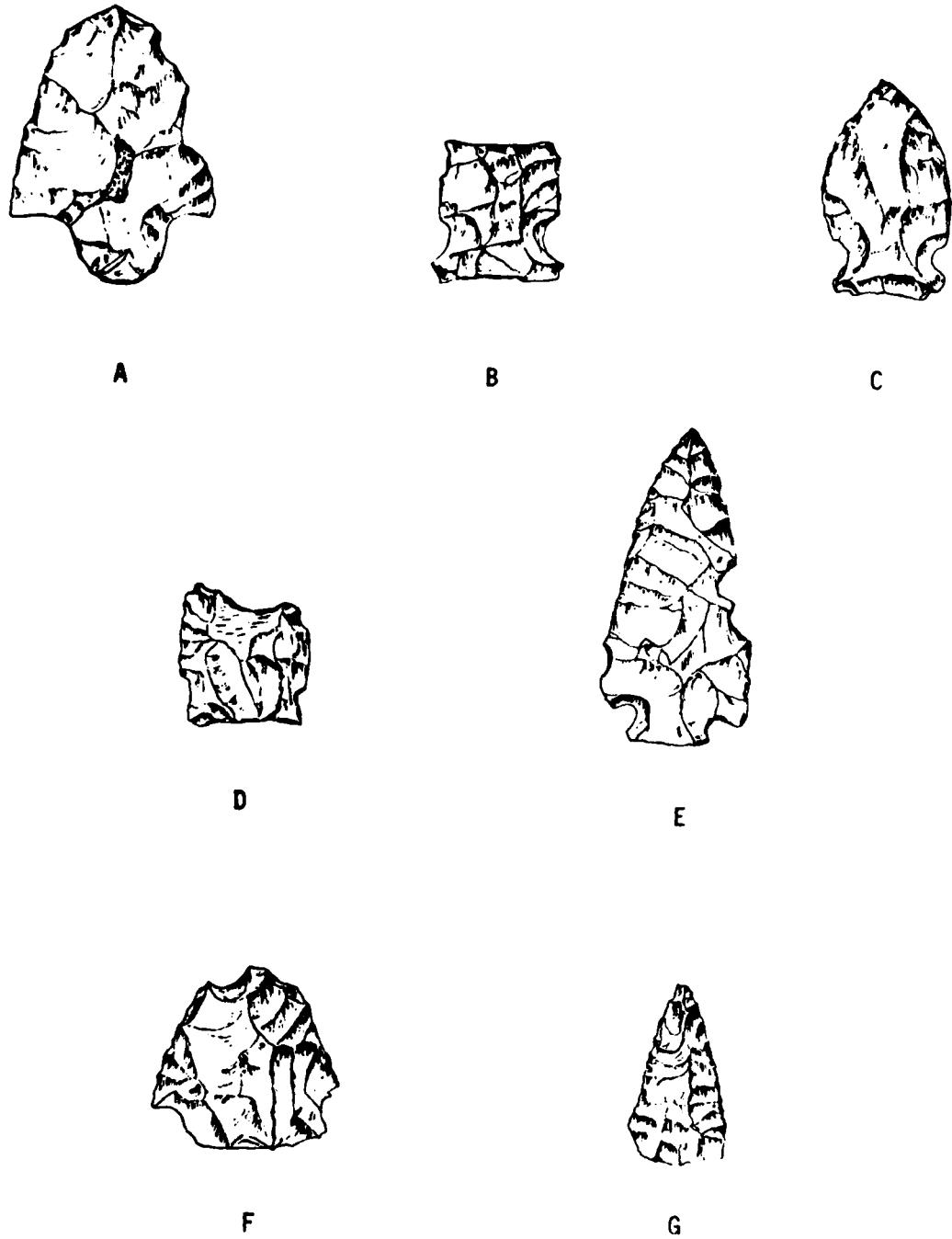


Figure 10. Projectile Points from 13DA6. (A) Convex-base stemmed point #1; (B) Side notched point #3; (C-E) Corner notched points #2, 4, and 5, respectively; (F) Notched point segment #7; (G) Elongate plain triangular point #6. All are from the surface. Actual size

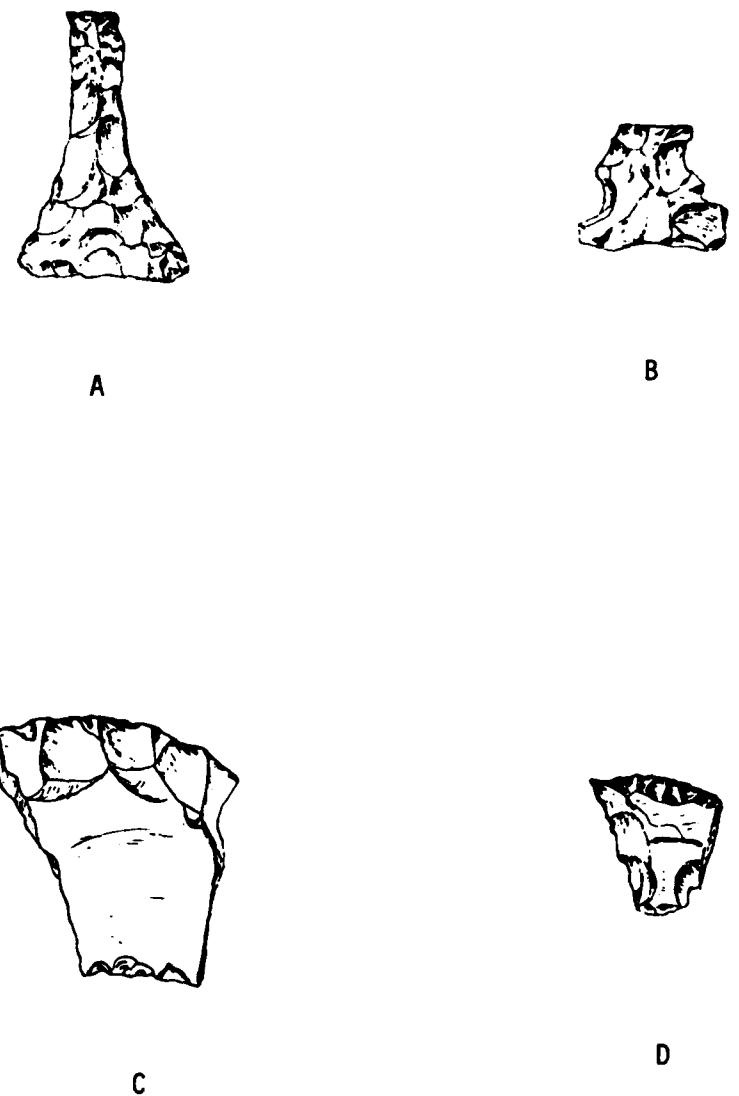


Figure 11. Selected Chipped Stone Tools from 13DA6. (A) T-shaped drill #16, (B) Drill base #15, (C) Retouched flake/scraper #8, (D) Retouched flake/scraper #9. All are from the surface. Actual size

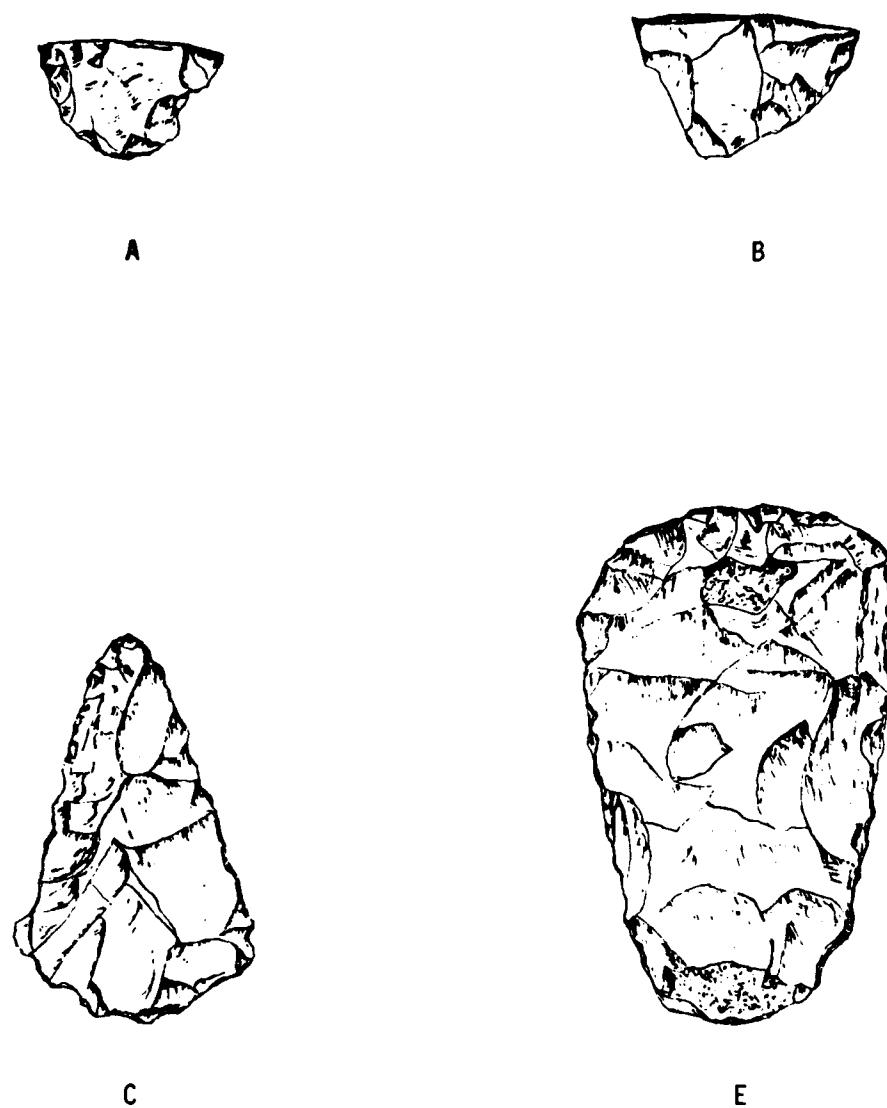


Figure 12. Selected Bifaces from 13DA6. (A) Thin biface fragment #12, (B) Thin biface fragment #332, (C) Triangular thin biface #275, (D) Large thick biface #346. All are from the surface. Actual size

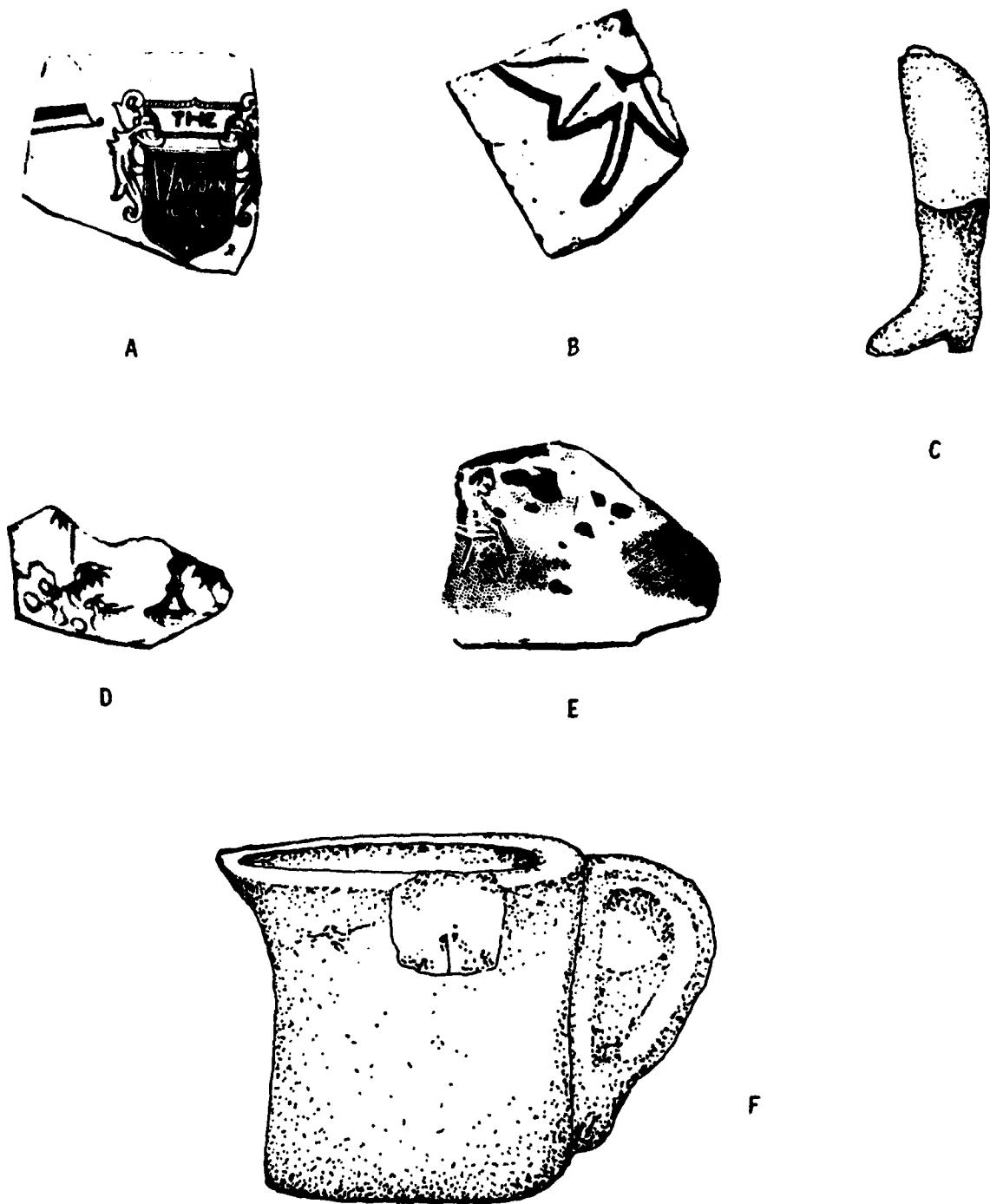


Figure 13. Historic Materials from 13DA6. (A) Green transfer ware china cup rim #50, (B) Red Wing stoneware vessel fragment #339, (C) China doll's leg #72, (D) Blue Willow porcelain fragment #57, (E) Black transfer ware vessel fragment #6, (F) Heavy china cream pitcher #750. All are from the surface. Actual size

manifestations (cf. Ritzenthaler 1967: 24-33). In addition, the land feature upon which the site is located is a complex insular outwash and alluvial terrace system separated from the valley wall by a former channel of the Des Moines River -- a rather unique geomorphological situation within the central Des Moines Valley. Glacial lithic source materials are particularly prominent here, and it is likely that this resource, as well as the proximity of this well-drained "island" to both primary and secondary stream habitats, served to draw prehistoric hunters to this locus. The potential appeared good, then, that evidence for the interaction of prehistoric cultures with the natural environment could be expected at 13DA6.

The first objective, then, was to determine if the residue of one or more prehistoric occupations remained intact at the site and whether or not the interfaces between them could be identified. If so, these data might be used to elucidate answers for the specific research questions regarding the relationship of Woodland manifestations here to comparable cultural components elsewhere in the region. A second research objective would be to see if ecofactual data, such as osteological materials and plant remains, could be recovered from cultural contexts at the site. Documentation of the residues of the nearby historic coal and gravel mining community, while not addressed specifically in the research questions posed for the Saylorville region, would be a logical objective in the testing of this site as well.

Statement of Methodology at Site 13DA6

As at other sites tested under this contract, aspects of the field methodology were changed slightly from those proposed, largely on the advice of the consulting soil scientists involved. A single east/west transect of eight solid-core probes, each 2 inches (5 cm.) in diameter, was taken with an hydraulic probe truck on 17 and 20 November 1980 (see Figure 14). Given the land forms present soil scientist Thomas Bicki felt that this would provide as much useable soils information as was needed and would be more time and cost efficient than the originally-proposed gridded probe pattern. The positions of the probes were mapped with a transit and stadia, using as a working origin the highest point on the terrace surface through which the transect had been placed. Probing was not carried beyond the steep escarpment on the east as this forms the limit of the modern river floodplain. The four easternmost probes, located on the surface of the high terrace remnant, encountered a concentration of outwash gravels and glacial cobbles from the surface to a depth of at least 2.0 ft. (61 cm.). To the west off the terrace remnant, however, the aggregate deposits abruptly stop and alluvial terrace fill is found up to depths of 3.0 to 4.7 ft. (92 to 143 cm.). In the westernmost probe the entire profile consists of channel fill -- alluvium and clay loam to a depth of 7 ft. (214 cm.). The data gathered in the probes indicated that the high terrace and intermediate terrace were the most likely loci for prehistoric occupation to have occurred.

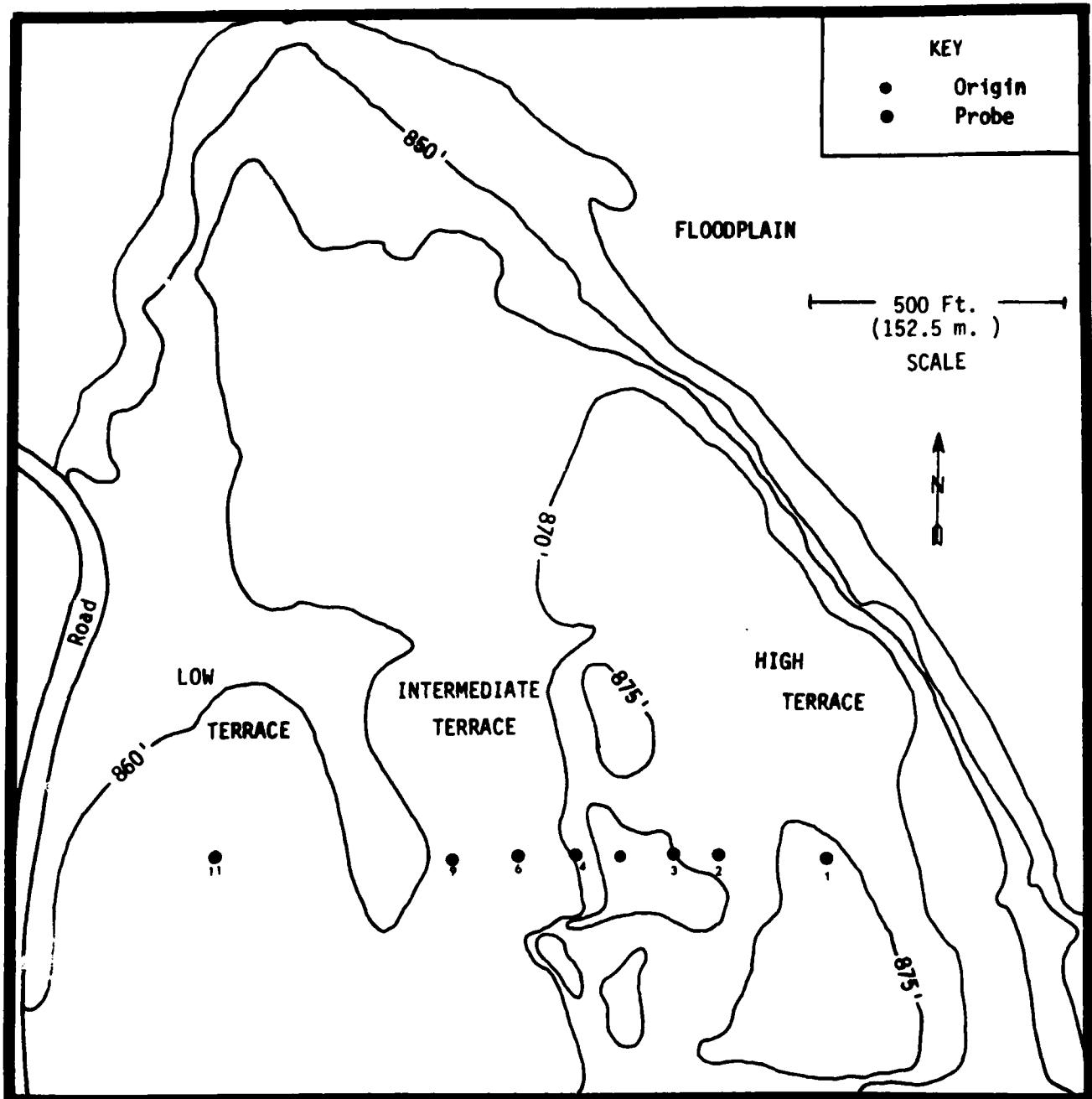


Figure 14. General Geomorphology and Placement of Soil Testing Probes at Site 13DA6.

After procuring solid-core probes from several of the Priority I test sites it became clear that the cores could provide specific information on hidden geomorphological features and buried soil surfaces which carried the potential for once having supported human occupation. However, the sampling capabilities of such probes are limited when the problem to be solved is whether buried cultural horizons are present or absent. Cultural horizons must be defined on the basis of collective cultural elements (eg. artifacts in association with other artifacts, ecofacts, human osteological remains, etc.), and, therefore, the sampling unit size must be increased to enhance the chances of finding cultural elements together once the potential for human occupation in an area has been established. Some mode of cluster sampling must be implemented, and the technique utilized at site 13DA6 was the excavation of thirteen short interrupted trenches with the use of a backhoe (refer to Figures 15 and 16). Since broad, horizontal machine scrapes were impractical in the stony ground, use of the short trenches was also the most effective method for gaining horizontal distributional information. Testing in this manner was initiated on 26 May 1981. Soil profile descriptions for these trenches are presented in Appendix C.

Another consideration in the testing procedure was that, by the time archaeological tests could be completed at 13DA6, the farmer lessee had already planted the field to beans and the Iowa Conservation Commission was anxious to keep damage to his crop to a minimum. A swath 100 ft. (30 m.) wide had been set aside for the sowing of switchgrass in a traverse across the site for wildlife management purposes (refer to Figure 15), and as much as possible, archaeological testing was confined to this area and to the fallow field directly to the south of the grass strip in order to spare the freshly-planted beans.

Nothing of cultural significance was located in any of the test trenches. However, for control purposes seven 5 ft. (1.5 m.) square hand-dug test squares were placed adjacent to Trenches #1, 4, 8, 9, 11, 12, and 13. The fill from each square was sifted through 1/2-inch mesh hardware cloth screens. The two test squares dug into the alluvial low terrace and the intermediate terrace west of the outwash terrace yielded nothing but some isolated bits of charcoal at a depth of 1.5 ft. (46 cm.) within Test Square #4. Within the test squares dug on the surface of the outwash terrace soil was found to be extremely hard and dry and packed with glacial cobbles and gravel, making excavation difficult (Plate 3); nonetheless, some limited cultural materials were found (refer to Table 3). In Test Square #5 in the fallow field two utilized flakes and a waste flake were recovered from the plowzone. Test Squares #6 and 7 were located to the north on the terrace ridge within the bean field. In addition to a utilized flake, a porcelain fragment, and an iron bolt from the plowzone, Test Square #6 produced four waste flakes below the zone of plow disturbance between depths of 0.7 and 1.4 ft. (21 to 43 cm.). Test Square #7 provided a chert fragment from the plowzone.



Figure 15. Placement of Soil Probes, Short Trenches, and Test Squares at 13DA6 in Relation to the Switchgrass Strip Traversing the Field.

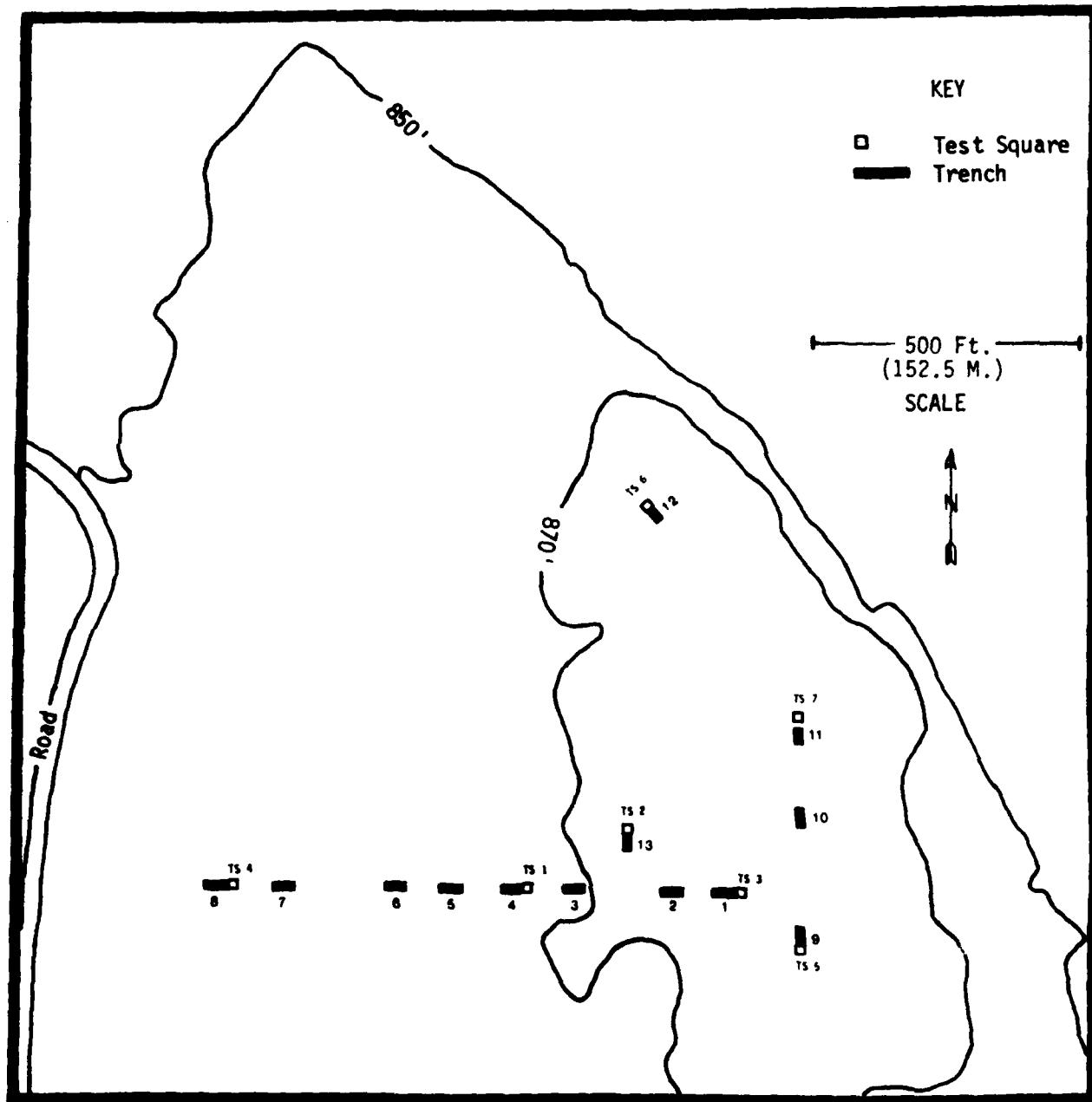


Figure 16. Placement of Short Trenches and Test Squares at Site 13DA6.

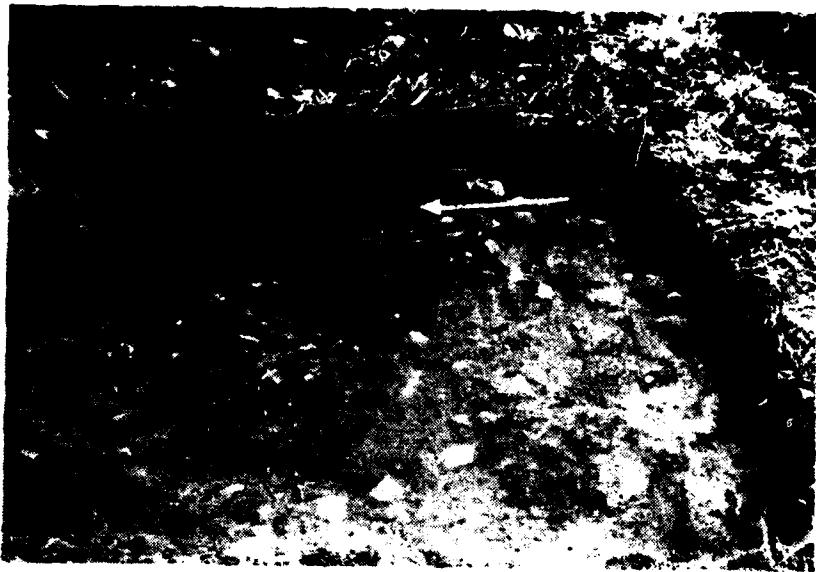


Plate 3. Abundant Outwash Cobbles Within Test Square #5 at 13DA6. Depth of the square as shown in 0.4 ft. (12 cm.) below the surface. View is to the east

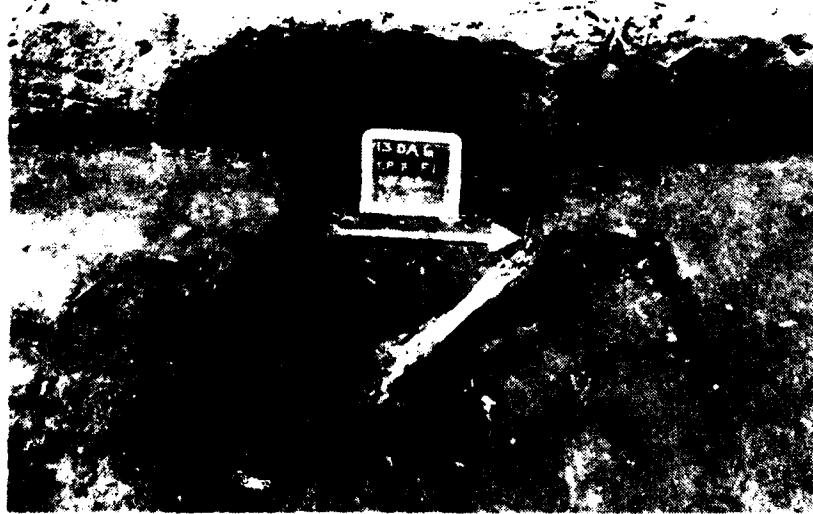


Plate 4. Feature 1, a Deposit of Semi-Articulated Lower Limb Bones of Elk or Wapiti, within Test Square #7 at 13DA6. The bone was uncovered at a depth between 1.0 and 1.4 ft. (30-43 cm.) below the surface. View is to the west

	Total	Materials Collected Prior to Testing	Materials Collected During Testing	Surface (cultivated field)	Ap or plowzone	A12/A3 soil horizon, 1.0-1.4 ft. (30-43 cm.) within test squares on high terrace	Feature 1 (within A12/A3 soil horizon of Test Square #7)
PREHISTORIC ARTIFACTS							
<u>Chipped Stone</u>							
Stemmed projectile point	1	1	-	1	-	-	-
Side or corner notched points & fragments	4	4	-	4	-	-	-
Small plain triangular projectile points	2	2	-	2	-	-	-
End scraper	1	1	-	1	-	-	-
Drill & drill fragments	3	3	-	3	-	-	-
Thin bifaces	7	6	1	7	-	-	-
Thick bifaces	7	6	1	7	-	-	-
Retouched flake/scrapers	2	2	-	2	-	-	-
Retouched flakes	6	6	-	6	-	-	-
Utilized flakes	12	9	3	9	3	-	-
<u>Chipped Stone Source & Waste Materials</u>							
Cores	9	9	-	9	-	-	-
Shatter chunks	12	12	-	12	-	-	-
Waste flakes	176	153	23	170	2	4	-
<u>Ground Stone</u>							
Hammerstone & pecked stone	2	2	-	2	-	-	-
<u>Unworked Stone Source Material</u>							
Chert cobbles	4	-	4	3	-	-	1
Hematite	3	-	3	3	-	-	-
HISTORIC ARTIFACTS							
<u>Ceramics</u>							
Decorated & white ware porcelain vessel fragments	26	23	3	25	1	-	-
Porcelain "china" doll fragments	3	3	-	3	-	-	-
Porcelain door knob & insulator fragments	6	6	-	6	-	-	-
Decorated & white ware ironstone vessel fragments	85	82	3	85	-	-	-
Stoneware vessel fragments	75	73	2	75	-	-	-
Ceramic marble & bead	2	2	-	2	-	-	-
<u>Glass</u>							
Clear, brown, & green glass container fragments	16	14	2	16	-	-	-
Decorative glass fragments	19	19	-	19	-	-	-
Milkglass jar & preserve jar liner fragments	10	9	1	10	-	-	-
Flat window glass & burned glass fragments	2	2	-	2	-	-	-
<u>Metal</u>							
Aluminum soap token	1	1	-	1	-	-	-
Silver-plated spoon	1	1	-	1	-	-	-
Steel scissors segment	1	1	-	1	-	-	-
Small brass bell	1	1	-	1	-	-	-

	6	7	8	9	10	11
Retouched flake/scrapers	2	2	-	2	-	-
Retouched flakes	6	6	-	6	-	-
Utilized flakes	12	9	3	9	3	-
<u>Chipped Stone Source & Waste Materials</u>						
Cores	9	9	-	9	-	-
Shatter chunks	12	12	-	12	-	-
Waste flakes	176	153	23	170	2	4
<u>Ground Stone</u>						
Hammerstone & pecked stone	2	2	-	2	-	-
<u>Unworked Stone Source Material</u>						
Chert cobbles	4	-	4	3	-	1
Hematite	3	-	3	3	-	-
<u>HISTORIC ARTIFACTS</u>						
<u>Ceramics</u>						
Decorated & white ware porcelain vessel fragments	26	23	3	25	1	-
Porcelain "china" doll fragments	3	3	-	3	-	-
Porcelain door knob & insulator fragments	6	6	-	6	-	-
Decorated & white ware ironstone vessel fragments	85	82	3	85	-	-
Stoneware vessel fragments	75	73	2	75	-	-
Ceramic marble & bead	2	2	-	2	-	-
<u>Glass</u>						
Clear, brown, & green glass container fragments	16	14	2	16	-	-
Decorative glass fragments	19	19	-	19	-	-
Milkglass jar & preserve jar liner fragments	10	9	1	10	-	-
Flat window glass & burned glass fragments	2	2	-	2	-	-
<u>Metal</u>						
Aluminum soap token	1	1	-	1	-	-
Silver-plated spoon	1	1	-	1	-	-
Steel scissors segment	1	1	-	1	-	-
Small brass bell	1	1	-	1	-	-
Miscellaneous iron objects & fragments (including tools, bolts, & a RR spike)	11	10	1	10	1	-
<u>ECOLOGICAL MATERIALS</u>						
Identifiable mammal bones & bone fragment (primarily wapiti)	42	2	40	2	-	40
Unidentifiable bone fragments	14	7	7	7	-	7
Freshwater mussel shell fragments	19	19	-	19	-	-
Wood charcoal samples	6	-	6	-	1	5
	591	491	100	526	7	53

Table 3. Tabular Summary of Archaeological Materials Recovered from Site 13DA6. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.

Below the plowzone contact in this same square a deposit of semi-articulated lower limb bones, now identified as *Cervus canadensis* (Holmes Semken, personal communication, 29 November 1982), was found in situ at a depth of 1.0 to 1.4 ft. (39-43 cm.) below the surface (refer to Plate 4). This deposit of wapiti or American elk bones was designated as Feature 1 and includes the tibia, metatarsal, tarsals, and several phalanges of the left hind leg of a sub-adult individual. In consultation with soil scientist Donald Wysocki it was determined that these bones lay on a buried soil surface, the composition of which is glacial till overlain by loess and sand and the age of which is unknown. Wapiti were abundant in the tall-grass prairies of western and central Iowa until well into the 1800s, but were killed in such large numbers by Euro-American settlers that their occurrence in Iowa after 1870 is rare (Bowles 1975: 141-143). No demonstrably prehistoric or historic materials were found in association with the bones in Feature 1 (refer to Table 3). Charcoal flecking and soil stains found nearby are thought to be of recent origin and are probably not directly associated with the deposition of the bone material. The test square limits were extended by 2 ft. (61 cm.) to the north of the feature to make certain that all of the bone present had been located, and as a further control, fill from around the bones was collected for flotation purposes even though no definite pit outlines could be seen. Testing at 13DA6 was completed on 3 June 1981 with removal of the bone in Feature 1 en bloc for more careful cleaning and analysis in the laboratory.

Results of Testing at 13DA6

In light of the prehistoric cultural materials collected from the surface of 13DA6 since 1967, the results of the testing conducted at the site in 1980 and 1981 are somewhat disappointing. The tests do show that the site is limited to the high outwash terrace remnant which, along with the intermediate terrace on its western flank, had been separated from the western valley wall by a stream meander which later filled with alluvial sediment. The terrace surface is less than 13,000 years in age and has been subject to some degree of erosion. During at least one period in its history, however, the terrace surface nearest the main river channel remained stable enough for eolian sands and some wind-blown loess to be deposited there, burying the terrace surface. It is on this buried surface that the semi-articulated wapiti bones were found in primary deposition, but not in demonstrable cultural context, between 1.0 and 1.4 ft. (30 to 43 cm.) below the modern surface. Flotation of the fill surrounding these bones produced no cultural or ecofactual materials which might provide further clues as to the specific nature of the deposit. Elsewhere on the high terrace the only prehistoric cultural materials located in primary context are four waste flakes -- all from one test square and all from within the buried A soil horizon corresponding to that in which Feature 1 was found.

Surface and plowzone materials collected at the time tests were underway are all derived from the area of the high terrace and include a thin biface fragment (Figure 12,B), a complete thick biface (Figure 12,D), three utilized flakes, and twelve waste flakes. One chert chunk and three unworked pieces of hematite collected may also be associated with prehistoric activities at the site.

Historic domestic materials obtained from the plowzone and surface at this time and added to the inventory include a porcelain dish fragment with painted floral underglaze decoration; two porcelain plate rims -- one with floral underglaze decoration and the other with a black checkered decoration; one ironstone fragment with flow-blue underglaze decoration; two white ironstone fragments, one of which is from a pot lid; two stoneware vessel sherds, one of which bears the colored stamp of the Red Wing Pottery Works (Figure 13,B); a clear glass jar fragment with raised lettering; a brown glass bottle lip; one milk glass preserve jar lid liner fragment; and one iron square-headed bolt. This domestic debris, as well as that collected earlier in surface surveys, is associated with the Euro-American settlement of the 13DA6 area which began in 1846 (Union Historical Company 1879: 290). Within the following decade, and within one and one-half miles to the northwest of the site, was established the village of Xenia which provided for a few years the services of a mercantile store, boarding house, one or two doctors, a Methodist Episcopal church, a post office, a blacksmith shop, and school house to the surrounding community (Hastie 1938: 33, Union Historical Company 1879: 290, 492). By 1867 local industry had arrived in the form of a saw and gristmill which was established on the Des Moines River within a mile north of 13DA6, and by 1870 a large coal shaft, which was "worked quite extensively" by horsepower according to a contemporary source, was opened within one-half mile south of the site (Hastie 1938: 33, Union Historical Company 1879: 284). Just after the turn of the century the Scandia Coal Company took over coal production in the region and one of the short-lived company towns, Scandia, was located in the 13DA6 vicinity (Hastie 1938: 384).

The evidence available, then, would suggest that prehistorically site 13DA6 was inhabited within the Late Archaic and/or through the Woodland period, possibly in successive short-term occupations over a period of several hundred years. Such an assumption is based on the varied projectile point styles present in the inventory and absence of deep accumulations of cultural debris generally associated with long-term encampments. Activities conducted at the site may have been more industrial than domestic. Chert concentrated in the glacial outwash on the surface of the terrace remnant at this location would have provided a ready source of raw material for prehistoric flint knappers. Indeed, almost the entire prehistoric inventory from the site is composed of chipped stone source and waste materials such as cores and/or preforms, chert shatter and cobbles, and waste flakes; of stone-working tools such as hammerstones; and the end products of flint knapping -- chipped stone tools such as projectile points, scrapers, drills, bifaces, and retouched and utilized flakes.

Sparse remnants of at least one of the prehistoric occupations may yet remain immediately below the plowzone at the site, but the bulk of the cultural residues left there -- including the historic debris laid down from the mid-nineteenth through the early twentieth century -- has apparently been incorporated into the plowzone in the historic period and has lost all contextual integrity. The context and reason for the deposit of the semi-articulated hind leg bones of a juvenile wapiti at the site remain unclear. Although it has been demonstrated by these tests that ecofactual material such as bone can be retrieved from the site in relatively good condition, in terms of the formally-posed research questions for the Saylorville area little new information has been gained which would shed light on the prehistoric culture history of the central Des Moines Valley.

Impacts of the Saylorville Lake Project on Site 13DA6

The major adverse impact upon site 13DA6 from the construction and operation of Saylorville Lake is the periodic inundation and wave action which will occur whenever the lake is allowed to rise into its flood control pool. The sandy rock-laden outwash comprising the terrace will be particularly susceptible to attrition from rapid fluctuations in water level, and the context of any archaeological materials which may have escaped the ill effects of plowing will be totally lost. Anticipated secondary impacts to the site may occur from the operation by the Iowa Conservation Commission of the duck "loafing ponds" on the floodplain immediately east of the site. Should borrow dirt for repair of the pond dikes or a spoil dump for sediments removed by dredging be needed, that agency should be cautioned to avoid the locus of 13DA6 for such purposes.

Recommendations for Further Work at Site 13DA6

Further archaeological work at site 13DA6 should be undertaken advisedly since tests at the site have now indicated a low potential for the location of undisturbed cultural horizons there. The geomorphological position of the site on an outwash terrace separated from the valley sideslope by a river channel is a somewhat unusual occurrence, and for this reason above others the site may be considered at some future date for further archaeological exploration. In the light of the quest to "fill in the gaps" in the culture history of the central Des Moines Valley and to define the interrelationships between the various groups of people who inhabited this valley and utilized its resources through time, site 13DA6 may no longer possess the best resource base available.

13BN14

Environmental Context of 13BN14

Site 13BN14 is located on an alluvial fan underlain by a riverine terrace above the left bank of the Des Moines River in Boone County, Iowa (Figure A-10). A small tributary to the Des Moines River flows near the site and serves as its western boundary (Figure A-11). The northern limit is the lower break in slope from the uplands, on the south beyond a former roadway the limit is defined by the terrace escarpment, and Iowa Highway 164 from Ledges State Park bounds the site on the east. The site's position lies between 870 and 890 feet above mean sea level and covers an area of 5 to 7 acres (2 to 2.8 hectares). All of the site area has been under cultivation within the historic period. At present, however, the westward portion of the site has reverted to secondary tree growth while the eastern, and greater, portion of the site remains in crop. The former roadway has been blocked to traffic except for tractor access to this field and those fields on the lowlands.

The soils upon which the site occurs have been mapped as Sattre loam, 2-5% slopes, and Moingona loam, 5-9% slopes (USDA Soil Conservation Service 1981: 28-32, 70, 73 and Sheet 53). These compose the alluvial fan, the parent material of which is glacial till from the uplands. Field observation of the underlying terrace show it to be composed of alluvial Hanlon soils. All these soils are moderately well drained to well drained. Native vegetation in the area was probably forest or a transition zone of forest mixed with prairie species.

Previous Investigations at Site 13BN14

Site 13BN14 was designated by the Office of the State Archaeologist in 1964 on the basis of a report that it was:

...an area from which local pothunters have made collections. It is situated on sloping ground to the north of the old "Sixteen to one" bridge...
(Ashworth and McKusick 1964: 7).

This area was field checked in 1966 by a survey team from the Smithsonian Institution River Basin Surveys. The RBS team reported that the land-owner had made a collection of corner notched projectile points from

the field and that they themselves had been able to collect a hammer-stone, a side scraper, three waste flakes, six pieces of shell, and three fragments of historic crockery. It was noted that:

Cultural debris appeared to be concentrated on or near a small rise in the northern end of the field. The site will be endangered and should be tested (Brown 1966: 7).

The following year Iowa State University archaeological personnel conducted a survey at the site under a contract with the National Park Service to perform archaeological work in Saylorville Reservoir. Survey conditions were good and on 13 June 1967, the crew recovered a convex-base stemmed point (Figure 17, B), a parallel-base stemmed point (Figure 17, C), a corner notched point base (Figure 17, G), and three small plain triangular points (Figure 17, H-J), as well as other less diagnostic chipped stone tools, chipped lithic source and waste materials, a pecked stone, unworked hematite, burned and unburned bone, and some freshwater mussel shells. Historic domestic debris was also collected.

In May of 1975, during the intensive survey of Reconnaissance Unit 14 in the upper region of the Saylorville Lake project undertaken for the Corps, Iowa State University again checked the site. Surfacing conditions were not as amenable as in the past and only one utilized flake and three waste flakes could be recovered. Nonetheless, all the data known thus far about the site were reported to the Corps with the recommendation that the site should be explored further by archaeological testing (Gradwohl and Osborn 1976: 92-93).

Site 13BN14 was visited on several occasions between 1976 and 1980 for the purpose of collecting any additional diagnostic materials available and to monitor the effects on the site of tree clearing and flooding in the vicinity of Ledges State Park. At those times more cultural artifacts were found, some of which showed up in the roadway on the southern limit of the site as well as within the field *per se*. Two corner notched points, one of which bears serrated edges (Figure 17, E-F), as well as other chipped stone tools and debitage were added to the site inventory during this period. No prehistoric ceramics had yet been found at the site.

Statement of Research Objectives for Site 13BN14

Site 13BN14 was chosen for Priority I testing status on the basis of the range of cultural affiliations thought to be present on the site and represented there by the varied projectile point styles collected from the surface since 1966. These points span the gamut from stemmed points of the Archaic/Early Woodland period to corner notched points of post-Woodland -- probably Great Oasis or Oneota -- cultural regimes (cf. Alex 1980: 67-74; Ritzenthaler 1967: 21, 27, 29, 33). It was hoped that evidence of some or all of these occupations might be

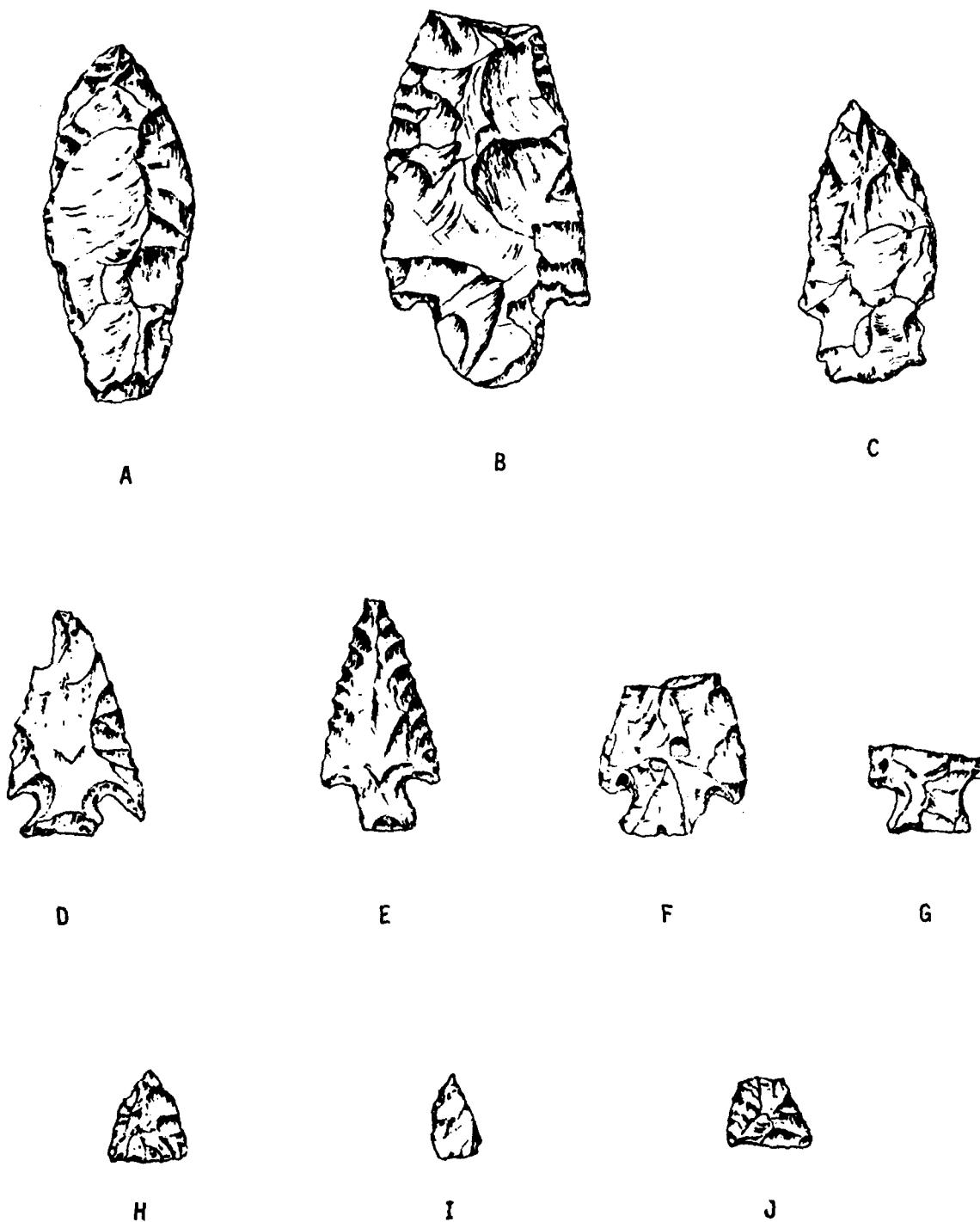


Figure 17. Selected Projectile Points from 13BN14. (A) Lanceolate point #133; (B) Convex-base stemmed point #30, (C) Parallel-base stemmed point #26, (D-G) Corner notched points #136, 74, 75, and 25, respectively; (H-J) Small plain triangular points #22, 45, and 23, respectively. All are from the surface. Actual size

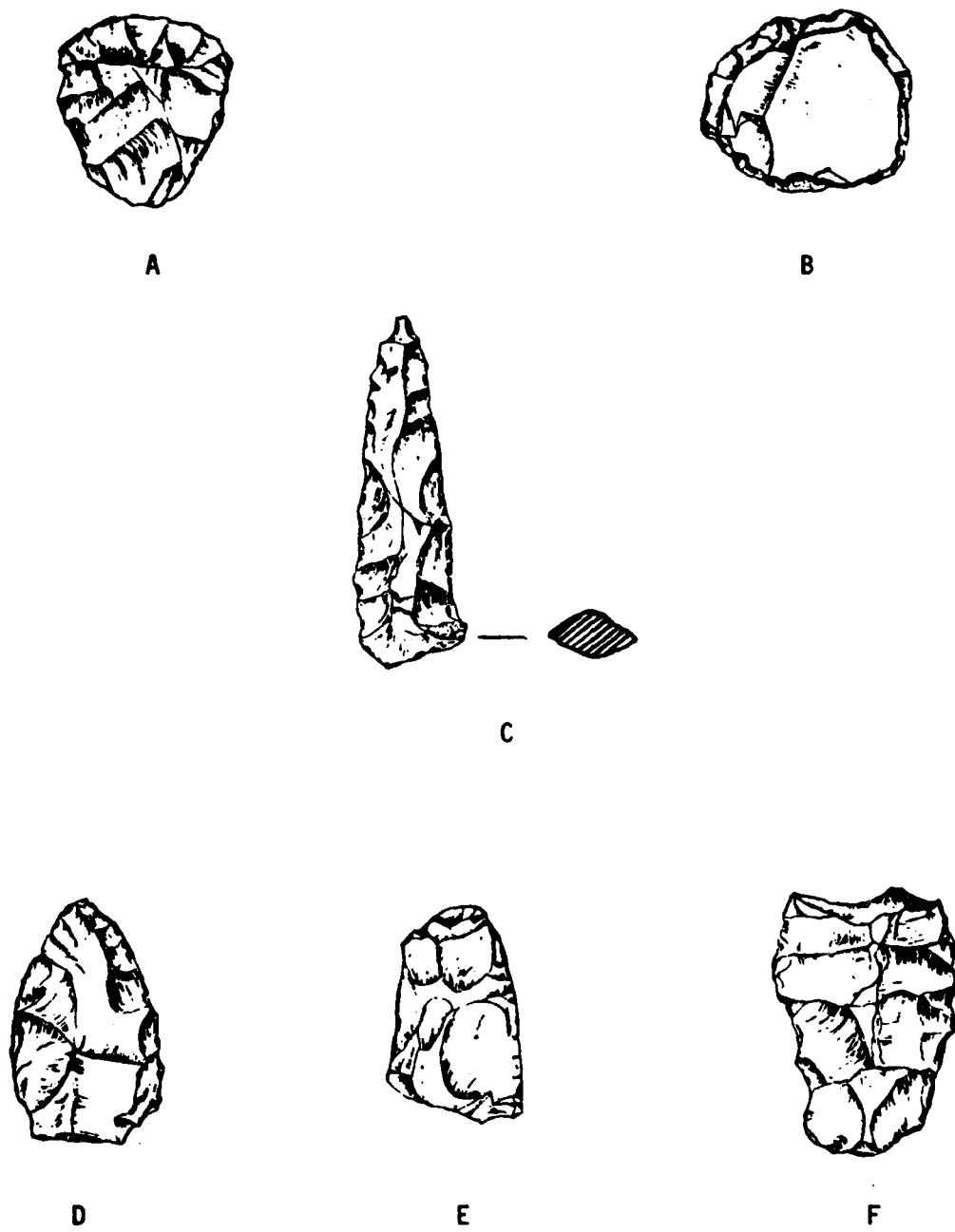


Figure 18. Selected Chipped Stone Tools from 13BN14. (A) End scraper #32, (B) Circular scraper #103, (C) Drill #76, with cross-section, (D) Thin biface or point fragment #27, (E) Thin biface #112, (F) Thin biface #31. All are from the surface. Actual size

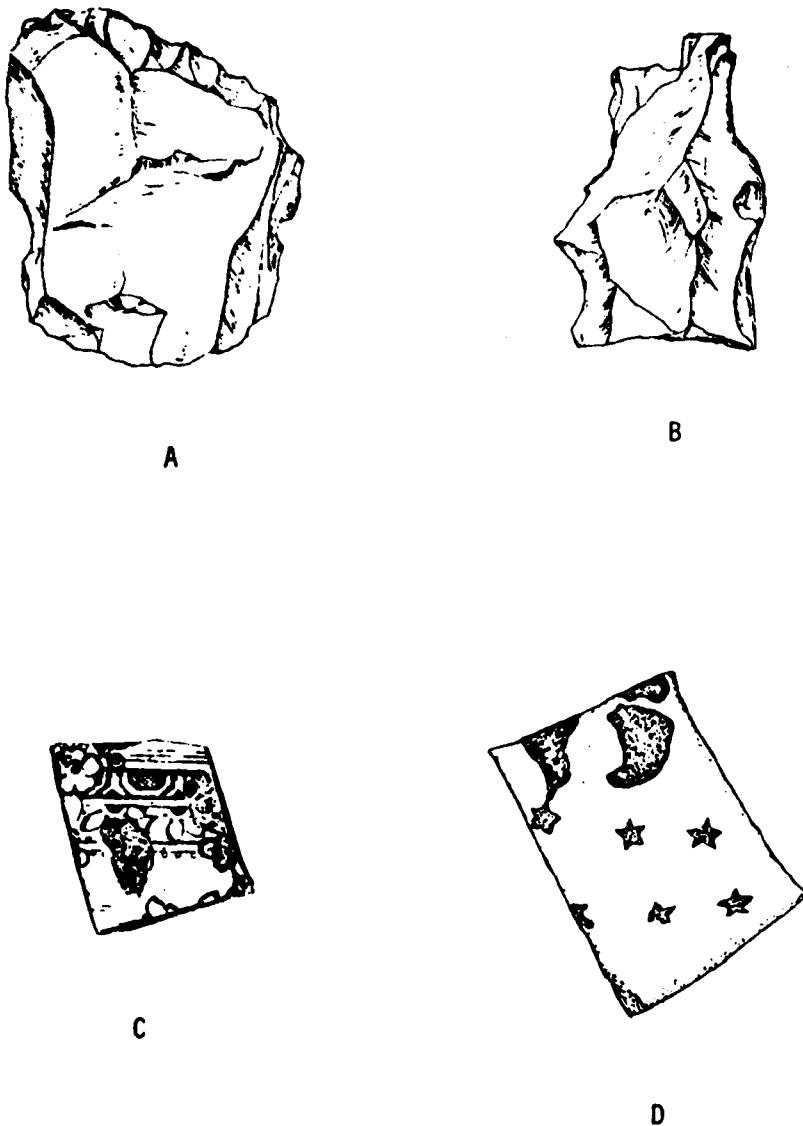


Figure 19. Selected Prehistoric Chipped Stone and Historic Ceramics from 13BN14.
(A) Thick biface #1, (B) Chert core #33, (C) Purple transfer ware
china sherd #61, (D) Stoneware body sherd with cobalt blue stenciling
#17. All are from the surface. Actual size

found in stratified primary contexts, providing a more clear understanding of the interrelationships of these manifestations one to another. Of particular interest, in terms of the formally-posed research questions for the Saylorville Lake area, is the chance to isolate and define a Great Oasis component and to discover cultural linkages between that occupation and Oneota manifestations known further downstream on the Des Moines. Discovery of connections between the distinctive Great Oasis ceramic style and those ceramic forms created by groups known more generally as Late Woodland who inhabited the valley either prior to or contemporaneously with Great Oasis might also be possible. Cultural elements of the Middle Woodland component at 13BN14 would be carefully analyzed to isolate any factors which might associate this manifestation with "Havanaoid" sites such as 13BN30 in the central Des Moines Valley and, more generally, with Havana Tradition assemblages defined to the east on the Mississippi and Iowa Rivers.

Statement of Methodology at Site 13BN14

As discussed previously for the test sites, field methodology in regard to the initial soil probing done at 13BN14 was altered on the judgment of the consulting soil scientists to consist of a probe transect across the major land features noted at the site. This was done on 28 October 1980 with a series of seven cores, each 2 inches (5 cm.) in diameter, taken with the use of a hydraulic probe truck in a northwest/southeast traverse (refer to Figure 20). Two supplementary widely-spaced probes were made southwest of this transect during the course of testing in order to gain additional soils information. The results of these probes showed that the site area is an alluvial fan composed of successive layers of glacial till transported from the uplands to the north and east. This fan joins a riverine terrace at the southern limit of the site; the juncture of fan with terrace coincides with the position of the present-day tractor access road. The judgment of the soil scientist is that the age of this fan is less than 6800 years; accumulation of the sediment was rapid, creating a cumulatively thick deposit at least 18 ft. (6 m.) in depth (refer to Appendix C).

Test excavations at 13BN14 were begun on 11 April 1981 with the digging of three separate backhoe trenches into the center of the alluvial fan (refer to Figure 21). These were 50 ft. (15 m.), 50 ft. (14 m.), and 25 ft. (7.6 m.) in length, respectively, and exposed vertical profiles which extended down 5.5 ft. (168 cm.) or well into the C soil horizon. The only culturally-derived materials recovered from the three trenches is one waste flake from a depth of 1.0 ft. (30 cm.) below the surface within the sub-plowzone A soil horizon of Trench #3 and one waste flake found in the backdirt of Trench #1. No distinct cultural horizons could be defined on the basis of either artifactual remains or soils data within the profiles exposed, although at least one buried soil

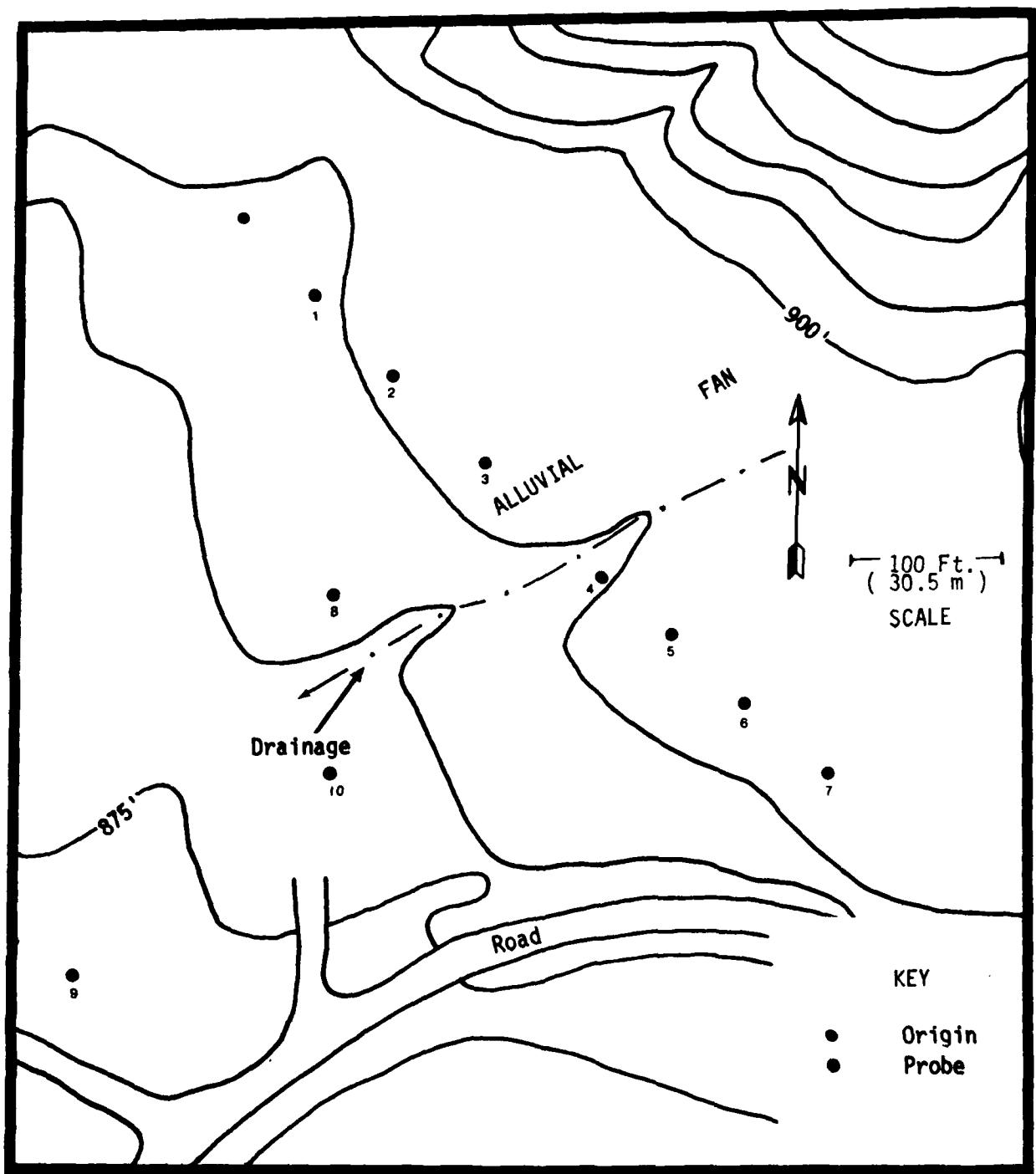


Figure 20. General Geomorphology and Placement of the Soil Probes at Site 13BN14.

surface between depositional layers was evident. The expectation of finding cultural remains from the top of the C soil horizon to the base of the alluvial fan was deemed unlikely on the basis of the soils data at hand; however, the potential for a cultural horizon predating 6800 years B.C. does exist for the surface of the terrace which underlies the fan. Nonetheless, a decision was made to take the trenches no deeper, for to have done so to the base of the fan would have required the opening of a very large portion of the site to accomodate the "stepping back" of the overburden, allowing both machine and personnel to safely reach and effectively look at that surface at a depth of 18 ft. (6 m.). It was felt that time considerations and cost effectiveness over the total project ruled against the very deep excavation at this time.

For control purposes in the testing of the upper portion of the alluvial fan, two hand-dug test squares, each 5 ft. (1.5 m.) square, were dug. These were taken into the B soil horizon: Test Square #1 to 1.2 ft. (37 cm.) and Test Square #2 to 2.6 ft. (79 cm.). The position of these squares in relation to the trenches is shown here in Figure 21. Fill removed from the hand-dug squares was sifted through 1/2-inch mesh hardware cloth screens. Two smoothed grit tempered body sherds were recovered from the plowzone of Test Square #1. The fill of this square to its terminal depth was full of glacial gravel. The fill of Test Square #2 -- from which a single heat treated waste flake was recovered at a depth of 1.5 ft. (46 cm.) within the A3 soil horizon -- was, on the other hand, composed entirely of sandy loam with just a trace of glacial gravel. This variability in soils on the same land form may be explained by the differential sorting of geological materials on the alluvial fan surface as rapid deposition took place.

The presence of the waste flake from the test square, as well as that found in primary context in the test trench, suggested that at least a portion of a cultural zone might be extant within the A soil horizon just below the plowzone. Quite a few artifacts, including four small coarsely grit tempered body sherds -- one of which is cord marked -- plus 66 chert stone tools and pieces of debitage, a fragment of ground stone, and two pieces of historic brick, had been collected from the surface during the testing procedure (refer to Table 4). These artifacts were collected and recorded as to their general provenience in the field, and by this sample it was ascertained that the central and south central areas of the field were most productive in terms of surface scatter. To expose a fairly large horizontal area to the base of the plowzone and just below, a decision was made to machine scrape an area of 400 square ft. (43 square m.); the area for this scrape was chosen on the basis of the concentrations of surface scatter (see Figure 21). After removal of the overburden by front-mounted bucket loader, the plowzone contact was quickly shovel-skimmed to produce a cleanly-cut surface on which features might be seen. One small grit tempered sherd and a waste flake were retrieved from the overburden, but no sub-plowzone features or artifacts were revealed.

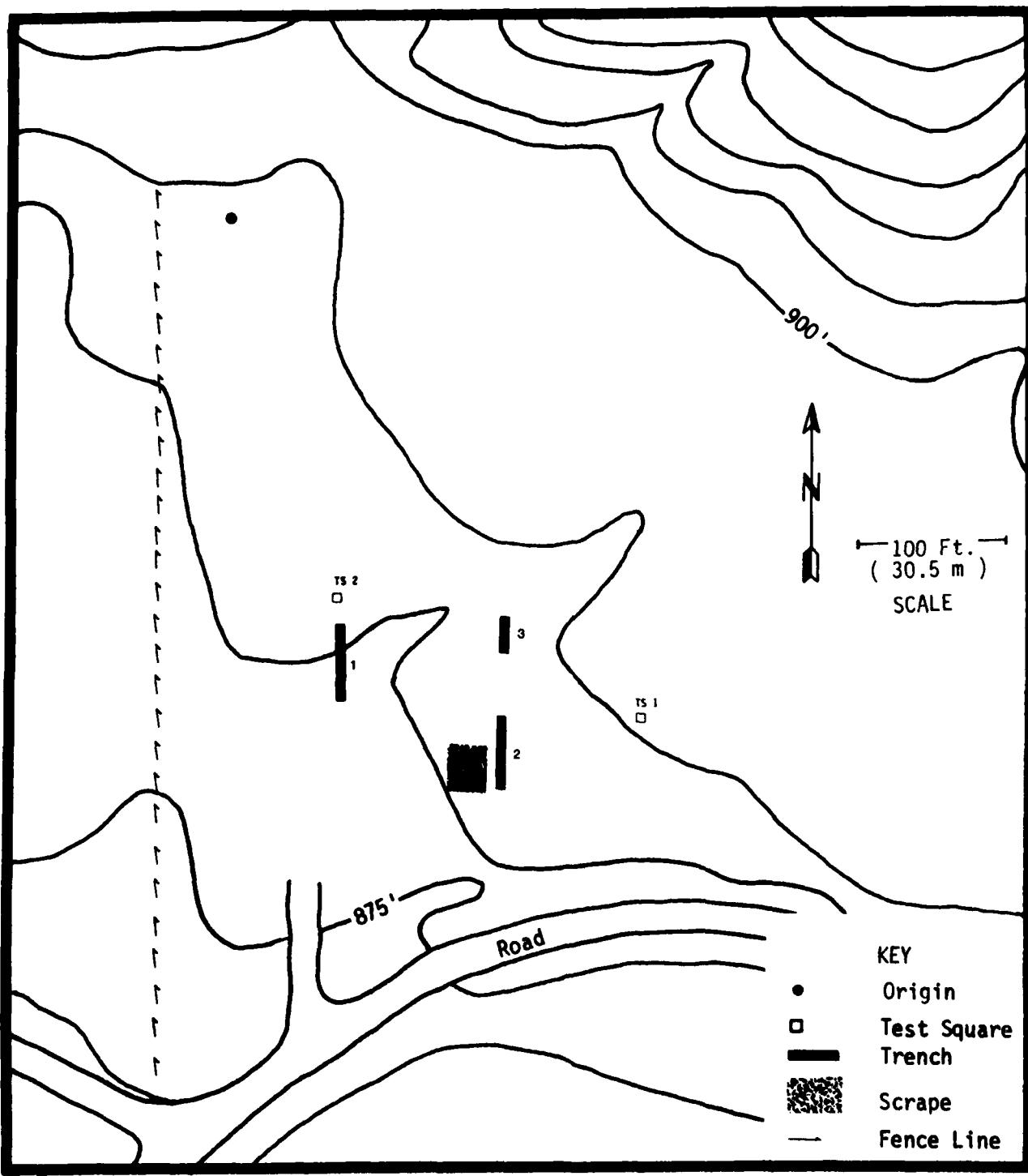


Figure 21. Placement of the Test Trenches, Horizontal Scrape, and Test Squares at Site 13BN14. The Federal acquisition line is just below and parallel to the 900-ft. elevation line.

PREHISTORIC ARTIFACTS		Total	Materials Recovered Prior to Testing	Materials Recovered During Testing	Surface (cultivated ground)		
<u>Ceramics</u>							
Grit tempered eroded body sherds	7	-	7	5	2	-	-
<u>Chipped Stone</u>							
Lanceolate projectile points	2	1	1	2	-	-	-
Stemmed projectile points	2	2	-	2	-	-	-
Corner notched projectile points	4	3	1	4	-	-	-
Small plain triangular points	3	3	-	3	-	-	-
End scraper	1	1	-	1	-	-	-
Retouched flake/scrapers	3	1	2	3	-	-	-
Drill	1	1	-	1	-	-	-
Graver/perforator	1	1	-	1	-	-	-
Thin bifaces	6	4	2	6	-	-	-
Thick bifaces	4	4	-	4	-	-	-
Retouched flakes	5	2	3	5	-	-	-
Utilized flakes	22	8	14	22	-	-	-
<u>Chipped Stone Source & Waste Material</u>							
Cores	3	3	-	3	-	-	-
Shatter chunks	11	2	9	11	-	-	-
Waste flakes	181	128	53	178	1	2	
<u>Ground Stone</u>							
Pecked & ground stone fragments	2	1	1	2	-	-	-
<u>Unworked Stone Source Materials</u>							
Hematite	7	7	-	7	-	-	-
Broken sandstone & granite pieces	2	-	2	-	2	-	-
HISTORIC ARTIFACTS							
<u>Ceramics</u>							
Decorated ironstone vessel fragments	4	4	-	4	-	-	-
White ware ironstone vessel fragments	12	12	-	12	-	-	-
Decorated stoneware vessel fragment	1	1	-	1	-	-	-
Stoneware vessel fragments	13	13	-	13	-	-	-
Red brick	2	2	-	2	-	-	-
<u>Metal</u>							
Iron bolt	1	1	-	1	-	-	-

Stemmed projectile points	2	2	-	2	-	-
Corner notched projectile points	4	3	1	4	-	-
Small plain triangular points	3	3	-	3	-	-
End scraper	1	1	-	1	-	-
Retouched flake/scrapers	3	1	2	3	-	-
Drill	1	1	-	1	-	-
Graver/perforator	1	1	-	1	-	-
Thin bifaces	6	4	2	6	-	-
Thick bifaces	4	4	-	4	-	-
Retouched flakes	5	2	3	5	-	-
Utilized flakes	22	8	14	22	-	-
<u>Chipped Stone Source & Waste Material</u>						
Cores	3	3	-	3	-	-
Shatter chunks	11	2	9	11	-	-
Waste flakes	181	128	53	178	1	2
<u>Ground Stone</u>						
Pecked & ground stone fragments	2	1	1	2	-	-
<u>Unworked Stone Source Materials</u>						
Hematite	7	7	-	7	-	-
Broken sandstone & granite pieces	2	-	2	-	2	-
<u>HISTORIC ARTIFACTS</u>						
<u>Ceramics</u>						
Decorated ironstone vessel fragments	4	4	-	4	-	-
White ware ironstone vessel fragments	12	12	-	12	-	-
Decorated stoneware vessel fragment	1	1	-	1	-	-
Stoneware vessel fragments	13	13	-	13	-	-
Red brick	2	2	-	2	-	-
<u>Metal</u>						
Iron bolt	1	1	-	1	-	-
<u>ECOLOGICAL MATERIALS</u>						
Mammal bone and teeth	2	2	-	2	-	-
Calcined bone fragments	3	3	-	3	-	-
Unidentifiable bone fragments	1	1	-	1	-	-
Freshwater mussel shell segments	7	7	-	7	-	-
	313	216	97	306	5	2

Table 4. Tabular Summary of Archaeological Materials Recovered from Site 13BN14. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.

Subsequent to the testing at 13BN14, a field check of the area resulted in the finding of still more surface materials. From the central portion of the field where testing had been concentrated was collected a corner notched point (Figure 17, D) plus additional worked lithic material and debitage. On the toeslope in the northeast central portion of the field near the Federal acquisition line a lanceolate point (Figure 17, A), a utilized flake, and one waste flake were located.

Research Results at Site 13BN14

The tests conducted at site 13BN14 verify that, sometime after 4800 B.C., assuming the soil scientist's estimate of age is correct, this alluvial fan above the Des Moines River floodplain served as the locus for an encampment of persons, probably of the Middle Woodland cultural tradition. The materials they left behind -- including hunting tools, ceramics, and the detritus of stone tool manufacture -- were not deeply buried, and along with a few projectile points left by persons of the post-Woodland era as well as domestic debris from historic Euro-American settlement of the area, these residues were incorporated into the plow-zone over the site by modern farming practices. A slight chance exists, based solely on soils information and two waste flakes recorded from the lower portion of the A soil horizon, that remnants of a cultural occupation may remain immediately below the zone of plow disturbance at the site. The potential for a very deeply buried cultural horizon at the site predating 4800 B.C. may exist for the terrace which underlies the fan. The surface find of a single lanceolate projectile point near the apex of the fan at the toeslope of the valley wall and, in style, similar to those points attributed to the Paleo-Indian or Big Game Hunting Tradition (cf. Ritzenthaler 1974: 18-19) lends some credence to this assumption. However, a fairly large expenditure of time and effort may be required to test this latter possibility.

Generally the tests conducted at 13BN14 have shown that the site probably can supply neither the quantitative nor the qualitative data as was once hoped to answer the specific research questions posed for the Saylorville Lake region. None of the Woodland materials present are distinctively "Havanaoid" enough to suggest that the potential exists for legitimate comparisons between this manifestation and others of the Havana Tradition. Beyond the three small plain triangular projectile points from the site's surface, there is nothing in the test data which would indicate that a significant post-Woodland occupation -- either Great Oasis or Oneota -- once existed here. This is not to say that the site should be written off entirely as a source of research information, but it is likely that there are other sites in the region which may provide more substantive data.

Impacts of the Saylorville Lake Project on Site 13BN14

At the present time the most adverse impact expected at site 13BN14 from the operation and maintenance of Saylorville Lake is the periodic

inundation and wave action which will occur whenever waters are allowed to rise into its flood control pool between elevations 870 and 890 feet above sea level. At such times erosion is likely to be severe on the outwash sands and gravels which comprise the alluvial fan on which the site is located and, since all of the cultural materials found thus far at the site have come from the upper levels of this land feature, the context of any archaeological materials remaining undoubtedly will be destroyed. Since the site is located on Federal property and at the edge of Ledges State Park and a state Camp Fire camp, any future expansion and concomitant development of either of these public facilities could present secondary adverse impacts to the archaeological site.

Recommendations for Further Work at Site 13BN14

Little further archaeological work is recommended at site 13BN14 at this time. However, some potential may be present for yielding information about very early occupation in the Des Moines Valley -- information which, if extant, is deeply buried at this location. The only surface indication of such a possibility was found upslope in the form of a single lanceolate projectile point near the Federal acquisition line. Should a decision be made for any more archaeological work to take place at the site, it is recommended that excavation be confined to the toeslope, much of which is now in private ownership, and/or to the exposed lower portion of the terrace on which the tractor access road is located. Exploration of any other portion of the site will require considerable expenditure of time and effort to remove overburden before the buried terrace surface is reached.

13BN27

Environmental Context of Site 13BN27

Site 13BN27 is located on a riverine terrace above the left bank of the Des Moines River in Boone County, Iowa, immediately southeast of the confluence of Stringer Creek with the Des Moines (Figure A-12). Alluvial fans lie above the site and slopewash from the uplands covers portions of the site to varying depths (refer to Appendix C). The site's position lies between 875 and 895 feet above mean sea level and covers an area of 10 acres (4 hectares). The floodplain of Stringer Creek forms the northern boundary of the site (refer to Figure A-13). To the east lies the base of the bluff slope, on the south is old U.S. Highway 30, and the floodplain adjacent to the Des Moines River channel forms the western limit. Throughout the historic period this area has been under cultivation. After Federal acquisition of the property the nearby houses were removed and the field was sown to a grass/hay cover which has been cut periodically.

The soil upon which the site occurs has been mapped as Moingona loam, 1-5% slopes and 5-9% slopes, which is a well-drained loamy alluvium (USDA Soil Conservation Service 1981: 28-29, 70 and Sheet 39). Field inspection of the soils on the stream terrace showed these to be of the Hanlon series, formed in loamy alluvium on natural levees (USDA Soil Conservation Service 1981: 63). Both soils once supported a native vegetation of forest or forest mixed with prairie species. Flooding over the floodplain and even up to the terrace surface is common here, leaving thick silt deposits.

Previous Investigations at Site 13BN27

Site 13BN27 was designated by the Office of the State Archaeologist in 1964 on the basis of a report that a local boy had found a flint knife in the area. However, a survey party from that office observed only scattered flint chips, clam shells, and historic china at the reported find spot since recent flooding had masked the area with silt (Ashworth and McKusick 1964: 8). Two years later the Smithsonian Institution River Basin Surveys team attempted to locate the site but was unsuccessful. It was the evaluation at that time that for 13BN27 "further investigation is unwarranted" (Brown 1966: 10-11).

In June of 1967 personnel from Iowa State University, under contract with the National Park Service to conduct archaeological work in Saylorville Reservoir, checked the reported find spot. Conditions for surface collection were optimal and numerous ceramic sherds of Great Oasis and Woodland

cultural affiliation; several notched, stemmed, plain triangular projectile points; several scrapers, bifaces, and other chipped stone tools; two three-quarter grooved axes; lithic source material and debitage; hematite; burned and unburned bone; and freshwater mussel shells were all recovered. In addition, historic materials such as china and stoneware vessel fragments, glass bottle fragments, an iron harness fitting, and a piece of stoneware "kiln furniture" were also collected (refer to Table 5). The site was checked again in June of 1969 under a continuation of the previous contract and, again, relatively copious prehistoric and historic artifacts were recovered and added to the inventory. By 1973 all the data then known for the site were summarized and presented to the U.S. Army Corps of Engineers-Rock Island District as part of a roster of sites recorded for the Saylorville Lake area (refer to Gradwohl and Osborn 1973b: 33).

During the intensive surface reconnaissance of Reconnaissance Unit 16 in the upper portion of Saylorville Lake in 1975, Iowa State University archaeologists again visited 13BN27. By this time the area had been Federally acquired, houses along the eastern periphery of the site had been removed, and the ground was masked by a dense grass cover broken occasionally by vehicle trails. The slopes above the site were being used by motorcycle hill climbers. Although surfacing conditions were not optimal a few grit tempered pottery sherds, plus chipped stone tools and debitage, were recovered along with some historic ironstone and stoneware fragments. All the information collected from the surface of 13BN27 up to that time was reported to the Corps with a recommendation that excavation of the site should take place prior to any development in the area (Gradwohl and Osborn 1976: 153-155).

Subsequent visits were made to the site through early 1980 by Iowa State University archaeological personnel for the purposes of collecting additional diagnostic materials and monitoring the impacts to the area by unauthorized recreational use. Vehicle trails across the site and animal burrows provided the only open ground to be observed and yet prehistoric ceramics, chipped stone tools, lithic debitage, and historic materials continued to show up at the site.

Statement of Research Objectives for Site 13BN27

Based on the relatively abundant number of diagnostic materials of both Great Oasis and Woodland cultural affiliation collected from the surface of site 13BN27 between 1967 and 1969, it was felt that this site possessed good potential for providing substantive data to answer several of the archaeological research questions posed for the Saylorville Lake area. It appeared that at least one Great Oasis occupation, as well as one or more Woodland occupations which probably precede it temporally, would likely be present with the possibility that the relationships between these occupations could be defined in a stratified sequence. The first objective, therefore, was to ascertain if indeed any cultural horizons represented in the surface finds remained intact. Assuming this to be the case, then more specific questions might be demanded of the data base. Of research interest, particularly in the light of specific research questions posed, are the connections between occupations of the Middle Woodland period,

PREHISTORIC ARTIFACTS		Total	Materials Collected Prior to Testing	Materials Collected During Testing	Surface (cultivated field & access trail)	Ap or plowzone (plus unsifted backdirt from test units)	A3/B21t soil horizon, 1.0-2.0 ft. (30-61 cm.) within trenches and other test units	Feature 1 (defined in A3 soil horizon)
Ceramics								
Great Oasis Incised rim/body segments	5	5	-	5	-	-	-	-
Decorated Woodland rim/body segments	20	15	5	15	3	2	-	-
Undecorated or cord marked grit tempered vessel fragments (including conical base sherds)	721	417	304	417	98	111	95	-
Fired clay lumps and/or daub	21	7	14	7	-	7	7	-
Chipped Stone								
Lanceolate projectile points	2	2	-	2	-	-	-	-
Stemmed projectile points	4	4	-	4	-	-	-	-
Side notched projectile points	2	2	-	2	-	-	-	-
Corner notched projectile points	5	4	1	4	1	-	-	-
Small triangular points with multiple notches	3	2	1	2	-	1	-	-
Small plain triangular projectile points	10	7	3	7	2	1	-	-
End scrapers	6	5	1	5	-	1	-	-
Drills	2	1	1	1	-	1	-	-
Graver/perforators	4	2	2	2	-	2	-	-
Thin bifaces (may include some point fragments)	26	15	11	15	6	5	-	-
Thick bifaces	9	9	-	9	-	-	-	-
Retouched flake/scrapers	6	4	2	4	1	1	-	-
Retouched flakes	12	10	2	10	1	1	-	-
Utilized flakes	162	89	73	89	20	53	-	-
Chipped Stone Source & Waste Material								
Cores	9	7	2	7	-	2	-	-
Shatter chunks	69	52	17	52	9	8	-	-
Waste flakes	1556	1047	509	1047	237	266	5	-
Ground Stone								
Three-quarter grooved axes	2	2	-	2	-	-	-	-
Sandstone abrader	1	1	-	1	-	-	-	-
Grinding stones	4	4	-	4	-	-	-	-
Unworked Stone Source Material								
Hematite	9	5	4	5	2	2	-	-
Worked Bone								
Scratched bone	1	1	-	1	-	-	-	-
HISTORIC ARTIFACTS								
Ceramics								
Porcelain vessel fragments	4	4	-	4	-	-	-	-
Decorated ironstone vessel fragments	4	4	-	4	-	-	-	-
White ware ironstone vessel fragments	12	11	1	11	1	-	-	-
Stoneware vessel fragments	415	388	27	388	27	-	-	-

Lanceolate projectile points	2	2	-	2	-	-	-
Stemmed projectile points	4	4	-	4	-	-	-
Side notched projectile points	2	2	-	2	-	-	-
Corner notched projectile points	5	4	1	4	1	-	-
Small triangular points with multiple notches	3	2	1	2	-	1	-
Small plain triangular projectile points	10	7	3	7	2	1	-
End scrapers	6	5	1	5	-	1	-
Drills	2	1	1	1	-	1	-
Graver/perforators	4	2	2	2	-	2	-
Thin bifaces (may include some point fragments)	26	15	11	15	6	5	-
Thick bifaces	9	9	-	9	-	-	-
Retouched flake/scrapers	6	4	2	4	1	1	-
Retouched flakes	12	10	2	10	1	1	-
Utilized flakes	162	89	73	89	20	53	-
<u>Chipped Stone Source & Waste Material</u>							
Cores	9	7	2	7	-	2	-
Shatter chunks	69	52	17	52	9	8	-
Waste flakes	1556	1047	509	1047	237	266	6
<u>Ground Stone</u>							
Three-quarter grooved axes	2	2	-	2	-	-	-
Sandstone abrader	1	1	-	1	-	-	-
Grinding stones	4	4	-	4	-	-	-
<u>Unworked Stone Source Material</u>							
Hematite	9	5	4	5	2	2	-
<u>Worked Bone</u>							
Scratched bone	1	1	-	1	-	-	-
<u>HISTORIC ARTIFACTS</u>							
<u>Ceramics</u>							
Porcelain vessel fragments	4	4	-	4	-	-	-
Decorated ironstone vessel fragments	4	4	-	4	-	-	-
White ware ironstone vessel fragments	12	11	1	11	1	-	-
Stoneware vessel fragments	415	388	27	388	27	-	-
Kiln furniture & red brick fragments	5	2	3	2	3	-	-
<u>Glass</u>							
Clear, brown, & milkglass container fragments	22	20	2	20	2	-	-
<u>Metal</u>							
Belgian coin, 1943	1	1	-	1	-	-	-
Iron cut nails	2	1	1	1	1	-	-
Miscellaneous iron fragments	6	5	1	5	1	-	-
<u>Bone</u>							
Saw-cut bone (from cuts of meat)	3	3	-	3	-	-	-
<u>ECOLOGICAL MATERIALS</u>							
Identifiable mammal bones & teeth	16	14	2	14	2	-	-
Calcined bone fragments	42	9	33	9	2	10	21
Unidentifiable bone fragments	29	3	26	3	11	15	-
Freshwater mussel shell segments	40	40	-	40	-	-	-
Wood charcoal samples	9	-	9	-	2	4	3
	3281	2224	1057	2224	432	493	132

Table 5. Tabular Summary of Archaeological Materials Recovered from Site 13BN27. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.

2

often characterized by Havana-style ceramics in the central Des Moines Valley, and those of the Late Woodland period, for which much less specific information is known for this region. Should a definable Late Woodland horizon be extant at 13BN27, the objective would be to compare the cultural traits which distinguish this manifestation from those of Middle Woodland and/or of Great Oasis components -- those components present both at 13BN27 and/or at other sites within the region. The degree to which Late Woodland may overlap temporally with Great Oasis manifestations is an unknown factor, and information gathered at 13BN27 may provide a clearer understanding in that regard. Lastly, should all or a portion of a Great Oasis horizon be intact at 13BN27, there is the chance that some data indicative of a presumed trade connection between Great Oasis peoples and inhabitants of Oneota villages along the lower central Des Moines River may be found. Any material found from the Euro-American settlement of the valley dating from the mid-nineteenth century will be collected for the data these may provide, particularly in light of the local stoneware industries documented in earlier archaeological studies (cf. Gradwohl 1974: 100-101; Gradwohl and Osborn 1976: 126, 133, 172-173).

Statement of Methodology at Site 13BN27

On the advice of Thomas Bicki, the originally-proposed plan for a grid of soil probes placed at 200-ft. (66-m.) intervals over the site was abandoned at 13BN27 in favor of the use of probing transects (refer to previous discussion for 13PK265). Between 13 October and 20 November 1980 two transects consisting of eleven 2-inch (5-cm.) diameter probes were taken and the location of each soil core removed was mapped with a transit and stadia. Mechanical difficulties with the hydraulic probe truck caused some delays in the procedure at this site. Both transects radiated from a single point on the sideslope above the site and traversed the major geomorphological features as defined by the soil scientists within the site area (refer to Figure 22 and to Appendix C).

From the Des Moines River east to the uplands, the 13BN27 area consists of a band of floodplain rimmed by a riverine terrace. Overlying the back portion of this terrace is an alluvial fan composed of slopewash derived from the till-covered sideslope and upland surface. Soils data gathered in the probes indicated that the terrace surface had once been stable enough for soil development to have taken place. Subsequently, portions of this soil surface were buried under 1.1 to 1.7 ft. (34 to 52 cm.) of slopewash deposits. Most of the surface artifacts collected by Iowa State University at 13BN27 since 1967 were known to have come from the terrace escarpment and riverward terrace surface -- that portion of the terrace which had not become entirely covered by the slopewash mantle. Therefore, with this knowledge plus the soils data, it was assumed that successive prehistoric occupation had taken place on the terrace position and that unexposed portions of one or more of these cultural horizons might remain, sealed under the alluvial fan deposits.

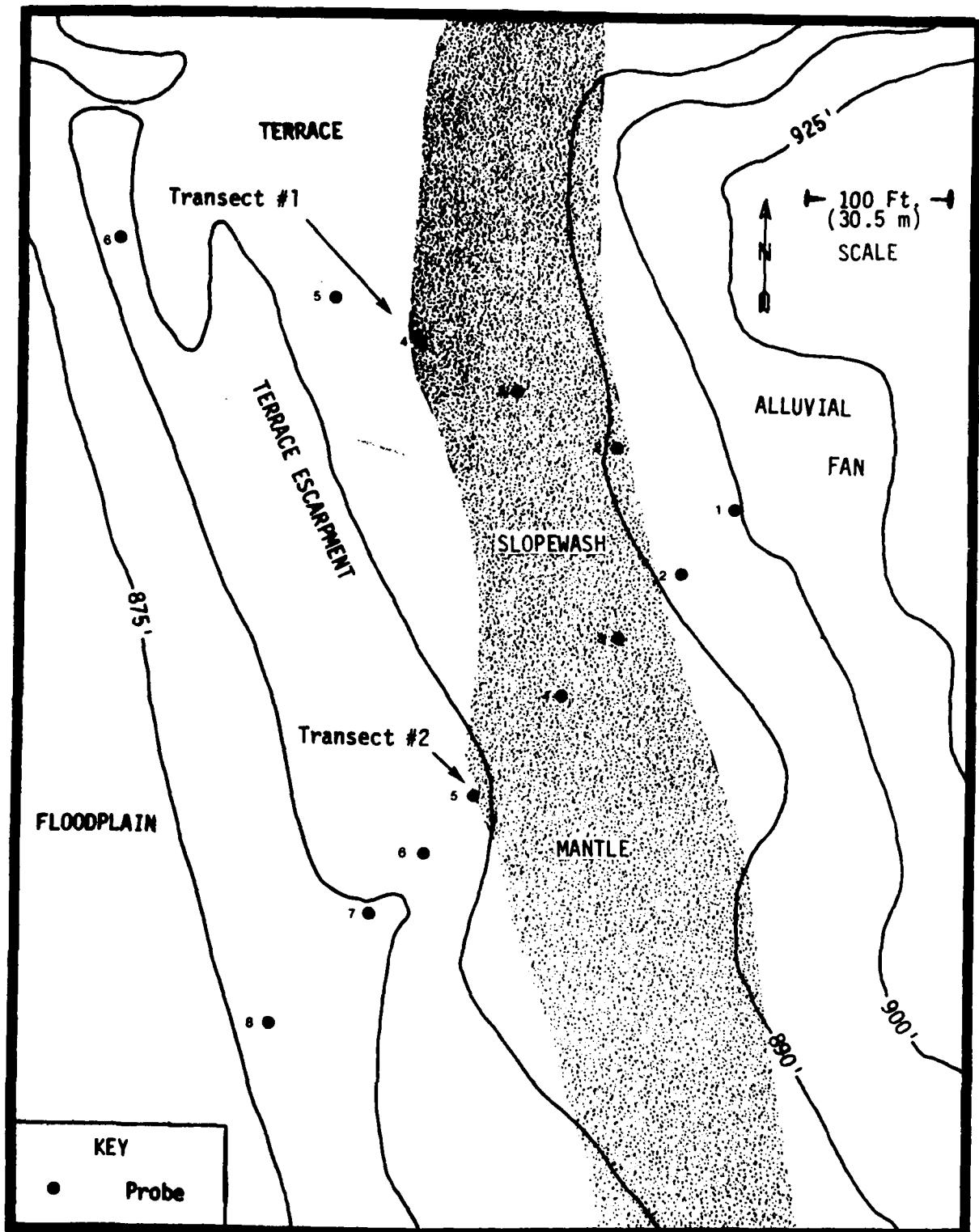


Figure 22. General Geomorphology and Placement of Soil Probing Transects at Site 13BN27.

The proposed schedule for fieldwork under this contract had called for the testing first of those sites in the northern portion of the project area, including 13BN27. This plan, however, was altered when fieldwork did not begin until fall of 1980 and the bulk of the work could not be completed until spring of 1981. As the disruption of spring crop planting was of major concern, the archaeological testing schedule was revised such that as many sites under cultivation as possible, regardless of their location within the project area, were tested before the crops were sown. Therefore, since 13BN27 is located within a wildlife management area and is not at present under active cultivation, testing was not begun there until most other sites under the contract had been completed.

By that time it was June of 1981 and the testing of several Priority I status sites was being conducted at the same time to bring the field program to completion. The efforts of eight students from the Iowa State University Archaeological Field School, under the direct supervision of David Gradwohl, were available at this time, in addition to the paid archaeological testing crew. To best use the personnel on hand a decision was made to deploy the supervised students to 13BN27 to conduct a sampling procedure utilizing shovel-assisted survey techniques. A total of 37 hand-dug shovel pits, each 2 ft. square and 2 ft. deep (61 cm. square and 61 cm. deep), was dug in a grid pattern at 50 to 75-ft. (15 to 23-m.) intervals over the site area beginning from the fenceline at the northern limit and extending south into the field for nearly 700 ft., or 214 m. (refer to Figure 23). From west to east the pits were situated between elevations of 880 to 910 ft. above mean sea level. As a control the fill from each pit was sifted through 1/2-inch mesh hardware cloth screens. Using the information gotten from the soil cores procured the preceding fall, the terminal depth of 2 ft. (61 cm.) was chosen to take the pits at least through the slopewash overburden to the terrace surface below to sample the probability of one or more extant cultural horizons at each pit location. The plowzone was shown to vary in depth over the site from 0.6 to 1.5 ft. (18 to 46 cm.) below the present ground surface. Prehistoric cultural materials, principally grit tempered ceramic sherds and utilized and waste flakes, as well as historic china, stoneware, metal, bottle glass, and coal clinkers, were ubiquitously distributed throughout the plowzone levels of most of the shovel-assisted survey pits dug. Below the level of plow disturbance within 14 of the 37 pits excavated were found prehistoric grit tempered pottery pieces, including a neck sherd with internal punctations, 33 smoothed or cord roughened body sherds, a chert graver, a utilized flake, 54 waste flakes, and chunks of granite. This collective evidence for a cultural zone or zones extant on the partially exposed or buried terrace surface was concentrated in the northern half of the field (refer to Figure 23) and on this basis more extensive testing procedures were carried out in this general area. The use of rapid shovel-assisted survey techniques along with the drilling of soil probe transects appears to have been a successful combining of methods for initial test sampling at 13BN27.

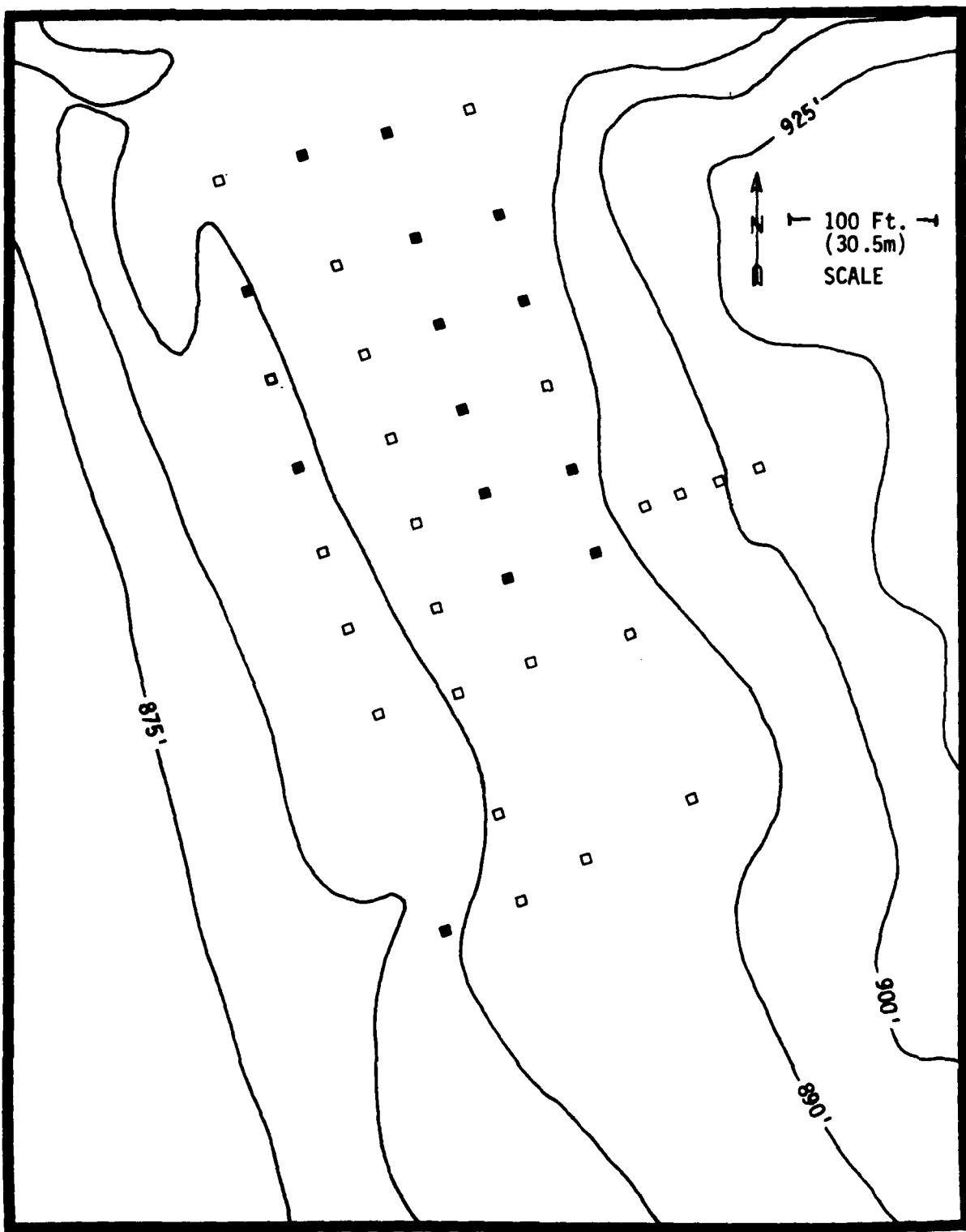


Figure 23. Placement of Shovel-Assisted Survey Pits at Site 13BN27. The solid squares indicate those pits in which cultural materials were found in primary context below the plowzone

Following the proposed field methodology, then, a backhoe was used to excavate two trenches oriented perpendicularly to the riverine terrace edge. The first, Trench #1, was placed through the terrace escarpment. It was 66 ft. (22 m.) in length and was taken to a maximum depth of 5 ft. (153 cm.) into the C soil horizon. The second, Trench #4, was located on the terrace surface per se to the north and east of Trench #1 (see Figure 24). Total length of this trench was 35 ft. (11.5 m.) and maximum depth was 4.5 ft. (137 cm.) into the C soil horizon. The vertical soil profile in Trench #1 shows that the alluvial sandy loam of the B soil horizon of the terrace surface lay immediately below the plowzone. The A horizon here had been eroded and incorporated into the plowzone; evidence for any overlying slopewash was nonexistent. In Trench #4, the profile indicates that on this portion of the terrace the A horizon remains relatively intact and the possibility of finding undisturbed cultural deposits here is far more likely.

To explore this possibility and to expose a portion of the terrace surface in horizontal profile for the purpose of cluster sampling to find artifacts in cultural context, a rectangular area of 400 square ft. (37 square m.) was selected to the east of the trenches (refer to Figure 24). Since a large number of personnel was available, this area, referred to here as Test Excavation Unit #1, was quickly shovel-scraped by hand to the base of the plowzone. Although the overburden was not screened, a fair amount of prehistoric grit tempered pottery, including Middle Woodland rims with punctations and cord-wrapped stick impressions, a thin biface, retouched and utilized flakes, shatter, waste flakes, historic salt glazed stoneware vessel fragments, an iron cut nail, a piece of glass, and a chunk of brick were recovered.

Concomittantly the backhoe was used to excavate two short trenches, one at either end of the rectangular scrape, for more vertical control information (refer to Figure 24). Because of the very dry condition of the soil these trenches were initially fairly shallow, but after a rain had softened the exposed cuts Trench #2 was taken to a maximum depth of 4.4 ft. (134 cm.) and Trench #3 to maximum depth of 5.8 ft. (177 cm.). Soil profile descriptions for these trenches are presented in Appendix C.

In general, these trenches exposed a more complex stratigraphy in this portion of the site than was seen in the trenches to the west. The "back" portion of the riverine terrace grades into an area of alluvial fill, possibly an old channel or slackwater area at the base of the sideslope. After alluvial filling had taken place here, slopewash from the uplands and sideslope had accumulated on top of the fill and formed an alluvial fan covering both this area as well as part of the adjacent riverine terrace. This alluvial fan was stable enough to permit soil development well before Euro-American settlement of the Des Moines Valley. After the mid-1800's, however, downslope erosion was accelerated in the region and up to 0.65 ft. (20 cm.) of recently-displaced material was added to the fan accumulation, covering over the soil developed on the fan prior to that time. The archaeological implications to be drawn

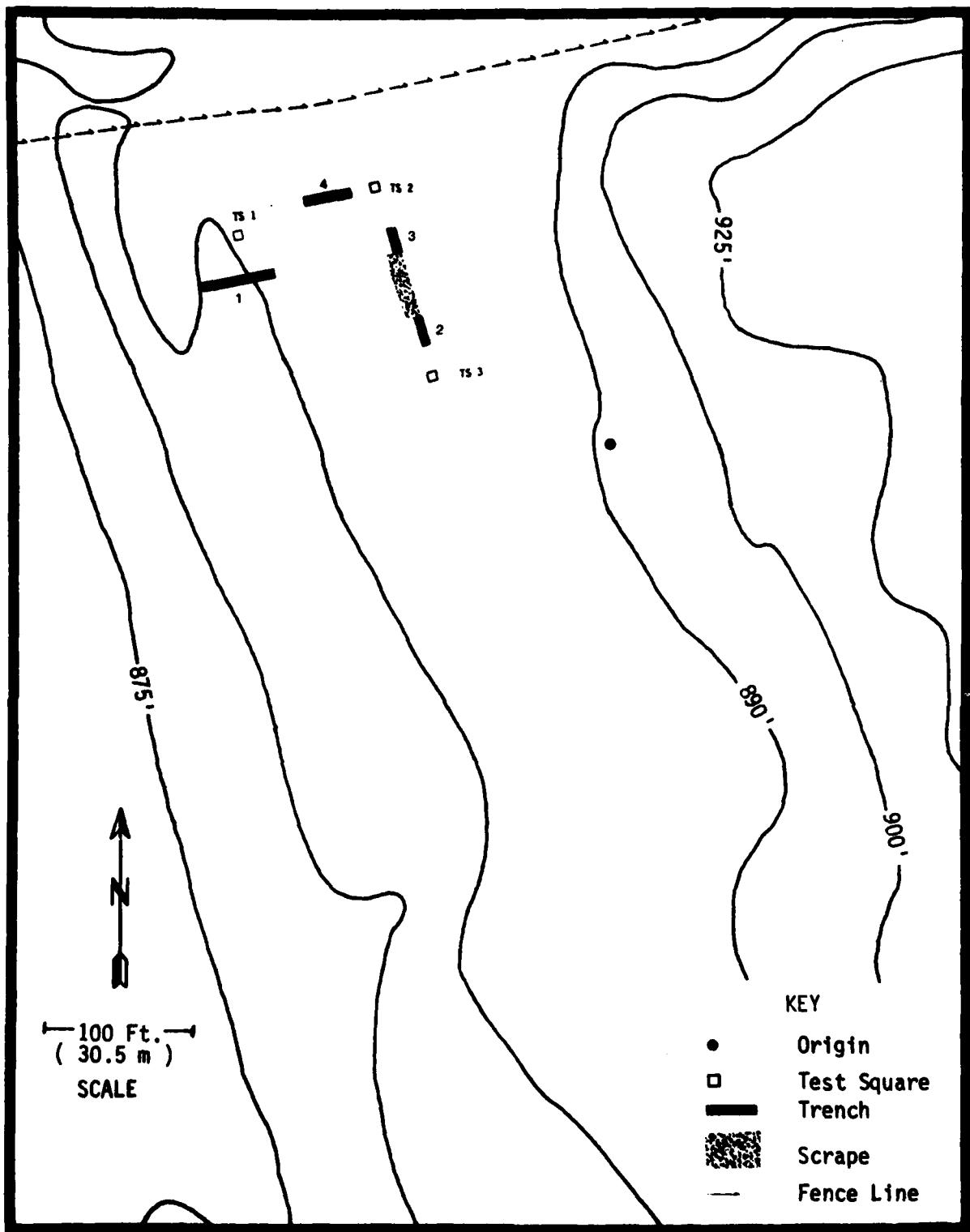


Figure 24. Placement of Trenches, Test Squares, and a Horizontal Scrape (Test Excavation Unit #1) at Site 13BN27.

from this information are that, not only was prehistoric occupation possible on the riverine terrace surface, but the surface of the alluvial fan would also have been available for contemporary or still later prehistoric occupation. Any cultural remains to be found on the fan surface are likely to be shallowly buried under recent slope-wash deposits.

Within the scraped area, then, it was expected that any overlying recent slopewash would have been included totally within the plowzone, based on the data from the adjacent trenches. Therefore, once all plowzone material was removed any cultural items exposed would be presumed to be in primary context. So, from the plowzone contact down the alluvial fan deposits were carefully shovel-skimmed by increments of 0.2 ft. (6 cm.) to a final depth of 1.6 ft. (49 cm.). For still finer control all of the sub-plowzone fill was sifted through 1/2-inch mesh hardware cloth screens as testing progressed (Plate 5). Cultural debris was encountered immediately and was piece-plotted by the 0.2-ft. (6 cm.) increment in which it was discovered. Vertical depth of the cultural deposit was found to extend from the base of the plowzone to 1.4 ft. (43 cm.) with the heaviest occurrence of artifacts noted between depths of 1.0 and 1.2 ft., or 30 to 37 cm. (see Figure 25). It was also at this 1.0-1.2 ft. (30-37 cm.) level that Feature 1 -- a soil stain containing parts of at least two crushed undecorated Woodland vessels, burned earth chunks and flecks, calcined bone, and charcoal -- was discovered (refer to Figure 25). A slit trench was dug across the feature to define its vertical extent after the horizontal limits were defined by trowelling (refer to Plates 6 and 7). The feature appears to be defined by a roughly basin-shaped soil stain 2.9 ft. (88 cm.) long and 2.1 ft. (64 cm.) wide with a vertical thickness of 0.8 ft. (24 cm.). The contents were mapped and removed, after which the earth fill was bagged for water flotation in the laboratory.

Two 5-ft. (1.5 m.) square areas within the test excavation unit, one at the north end and the other at the south, were dug very quickly with shovels beyond the 1.6 ft. (49 cm.) depth to serve as a stratigraphic control against the information gained in the backhoe trenches. In the northern pit gravel and hard clay were encountered at a depth of 2.6 ft. (79 cm.), and in the pit to the south deposits of silty clay loam, reflecting probable channel fill, were found almost continuously to a depth of 5.5 ft. (168 cm.). In neither instance were artifacts encountered below the cultural deposits exposed in the scrape.

Outside the scraped area three additional hand-dug tests were made. Each 5 ft. (1.5 m.) square test square was dug by shovel and the fill was screened through 1/2-inch mesh. Test square #1 was located on the terrace surface (refer to Figure 24) and was taken to a final depth of 2 ft. (61 cm.). At this location cultural materials were recovered continuously from the base of the plowzone to a depth of 1.8 ft. (55 cm.), as well as from the plowzone.



Plate 5. Shovel Skimming, Screening, and Mapping in Progress at the Base of the Plowzone Within Test Excavation Unit #1 at 13BN27. View is to the northwest



Plate 6. Feature 1 in Horizontal Profile at 1.4 Feet (43 Cm.) Below the Surface Within Test Excavation Unit #1 at 13BN27. View is to the north

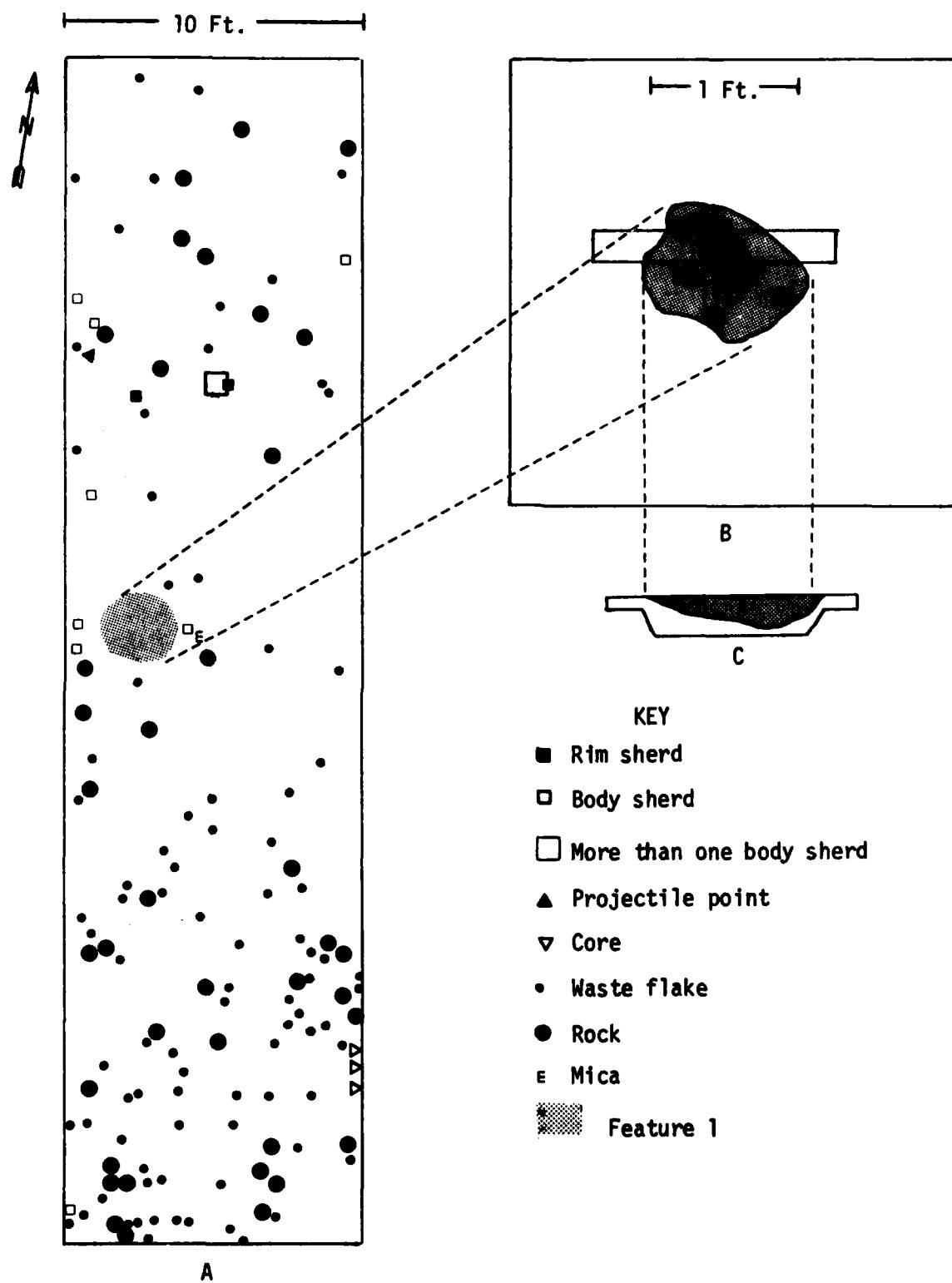


Figure 25. Profiles of the Cultural Horizon Within Test Excavation Unit #1 at 13BN27. (A) Horizontal distribution of cultural materials at 1.0-1.2 ft. (30-37 cm.) below surface, (B) Horizontal profile of Feature 1 at 1.2-1.6 ft. (37-49 cm.) below surface, (C) Vertical profile of Feature 1 as seen within the slit trench



Plate 7. Excavation of Feature 1 at 13BN27 in progress. A hand-dug slit trench was placed through the soil stain to define the vertical limits of the feature. Feature fill was bagged for water flotation in the laboratory. View is to the west southwest

The items found in primary context include numerous pieces of grit tempered pottery and three waste flakes. In the 0.8-1.2 ft. (24-37 cm.) level, one of the most distinctive pieces found is a thick rim and shoulder segment with exterior zoned dentate decoration and nodes plus interior punctations and dentate stamping (see Figure 29). The vessel segment has many of the characteristics of zoned Havana wares typical of the Middle Woodland period. In order to remove the piece in context the test square was expanded horizontally to the north by 1 ft. (30 cm.) over its entire depth. Just below this find, in the 1.2-1.6 ft. (37-49 cm.) level, was found a vessel neck/shoulder segment characterized by smoothed-over cord roughened surface treatment. Even though the rim portion is absent, the right-angle configuration of the neck juncture and the relative thinness (2-4 mm.) of this piece and a sherd found nearby suggests that the vessel is of Late Woodland or Great Oasis cultural affiliation. Still deeper in this square, at the 1.6-2.0 ft. (47-61 cm.) level, was found a tall grit tempered rim and neck segment with a smoothed exterior, squared lip, and right-angle neck juncture (see Figure 31, E). The height of the rim is 59 mm. A cultural assignment in the formal-temporal realm of Mississippian, Great Oasis, and/or Late Woodland is postulated for this piece.

Test Square #2 was placed east of Trench #4 on the riverine terrace surface (refer to Figure 24). This square was dug to a final depth of 2.2 ft. (67 cm.); however, there was general disturbance of the fill evident from the surface to a depth of 1.4 ft. (43 cm.) in which modern soy beans and coal clinkers were found to be mixed with grit tempered pottery sherds, a chert punch or biface (Figure 26,F), a drill base (Figure 26,C), retouched and utilized flakes, shatter, waste flakes, un-worked hematite, and charcoal. Therefore, the only cultural materials in definitely primary association from the square are a chert graver and 41 waste flakes from 1.4 to 2.0 ft. (43 to 61 cm.). The mixed fill in the upper portion of the square is probably attributable to some localized disturbance, such as a mired-down tractor, in fairly recent times.

Test Square #3 was located to the south of Test Excavation Unit #1 on the alluvial fan where the fan overlies older channel or slackwater fill, as revealed in Trench #2 nearby (refer to Figure 24). The square was dug to a final depth of 2.0 ft. (61 cm.) after the excavators encountered clay and heavy gravel deposits from 1.2 ft. (37 cm.) down. Below the plowzone and above the 1.2 ft. (37 cm.) depth were recovered a thin biface segment and six waste flakes. Two additional flakes were found in the gravel-laden fill between 1.2 and 1.6 ft. (37-49 cm.). All of the fill to the terminal square depth appeared to be slopewash forming the alluvial fan.

The tests carried out at 13BN27 were able to meet and go beyond the testing strategy originally proposed for the site. This was possible largely because of the work force made available by the Iowa State University

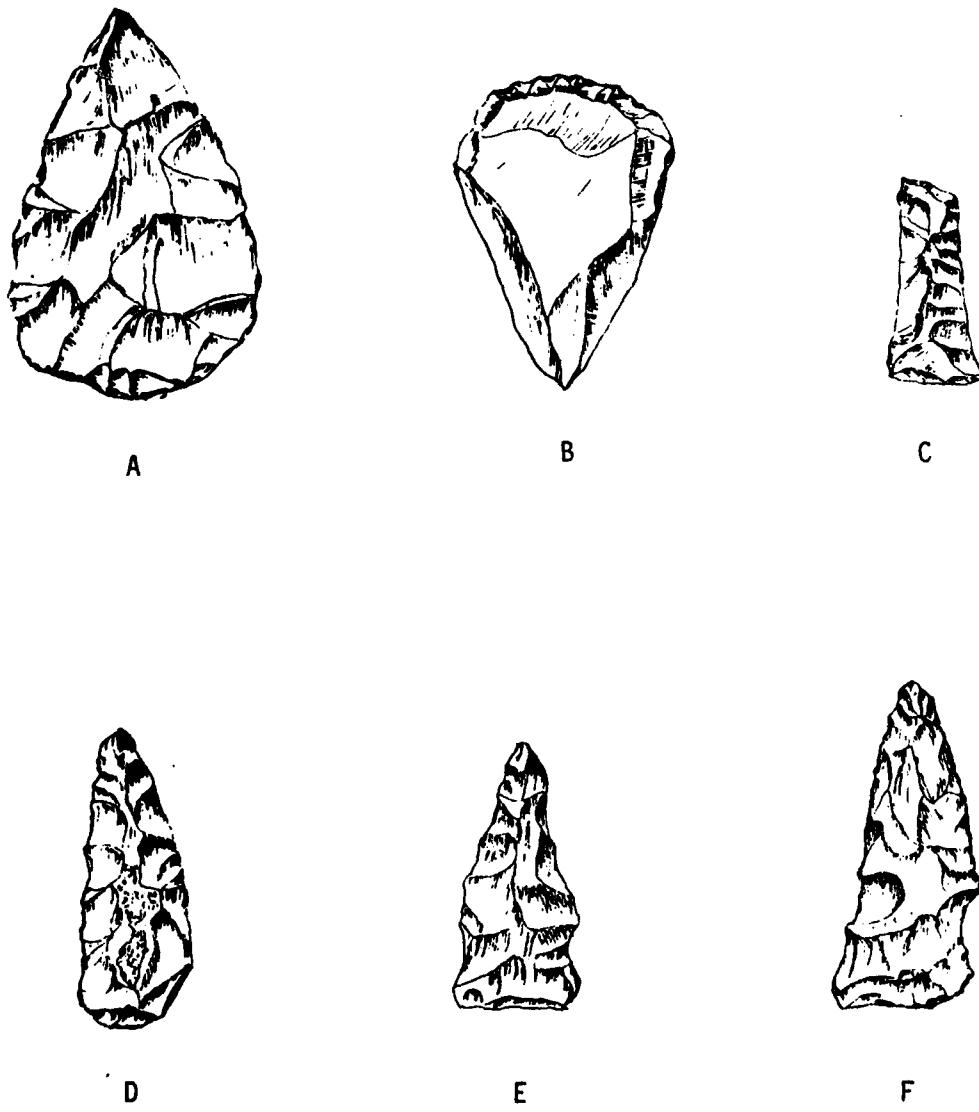
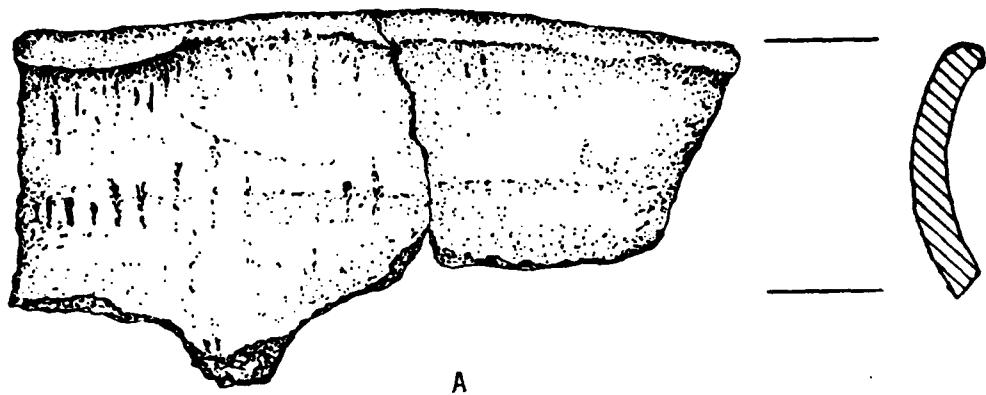
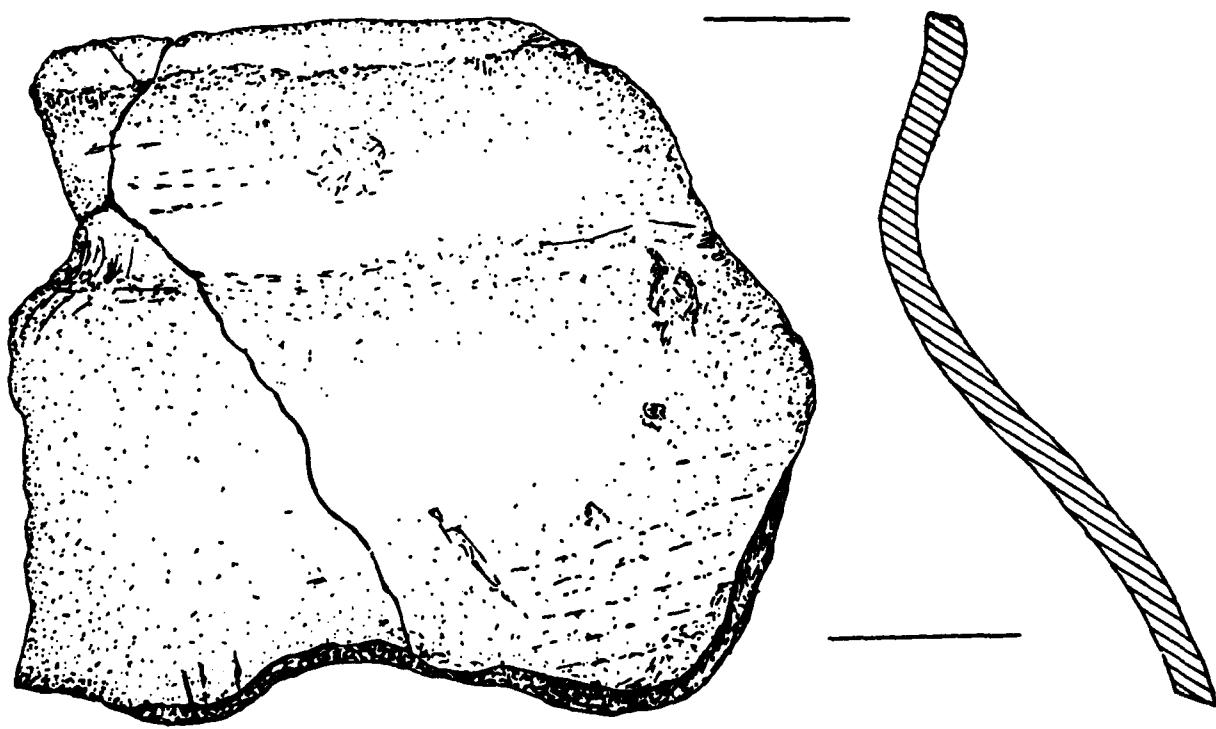


Figure 26. Selected Chipped Stone Tools from 13BN27. (A) Thin biface #56; (B) End scraper #60; (C) Drill base #896; (D-F) Punches or perforators #522, 596, and 872, respectively. A, B, D, and E are from the surface; F is from the plowzone and C is from a depth of 0.8-1.2 ft. (24-37 cm.), both within Test Square #2. Actual size



A



B

Figure 27. Late Middle Woodland Rim/Shoulder Segments from 13BN27.
(A) Specimen #780/792, shown with exterior and cross-section views;
(B) Specimen #791, shown with exterior and cross-section views.
Both are from Feature 1 and exhibit smoothed-over cord roughened
surface treatment. Actual size

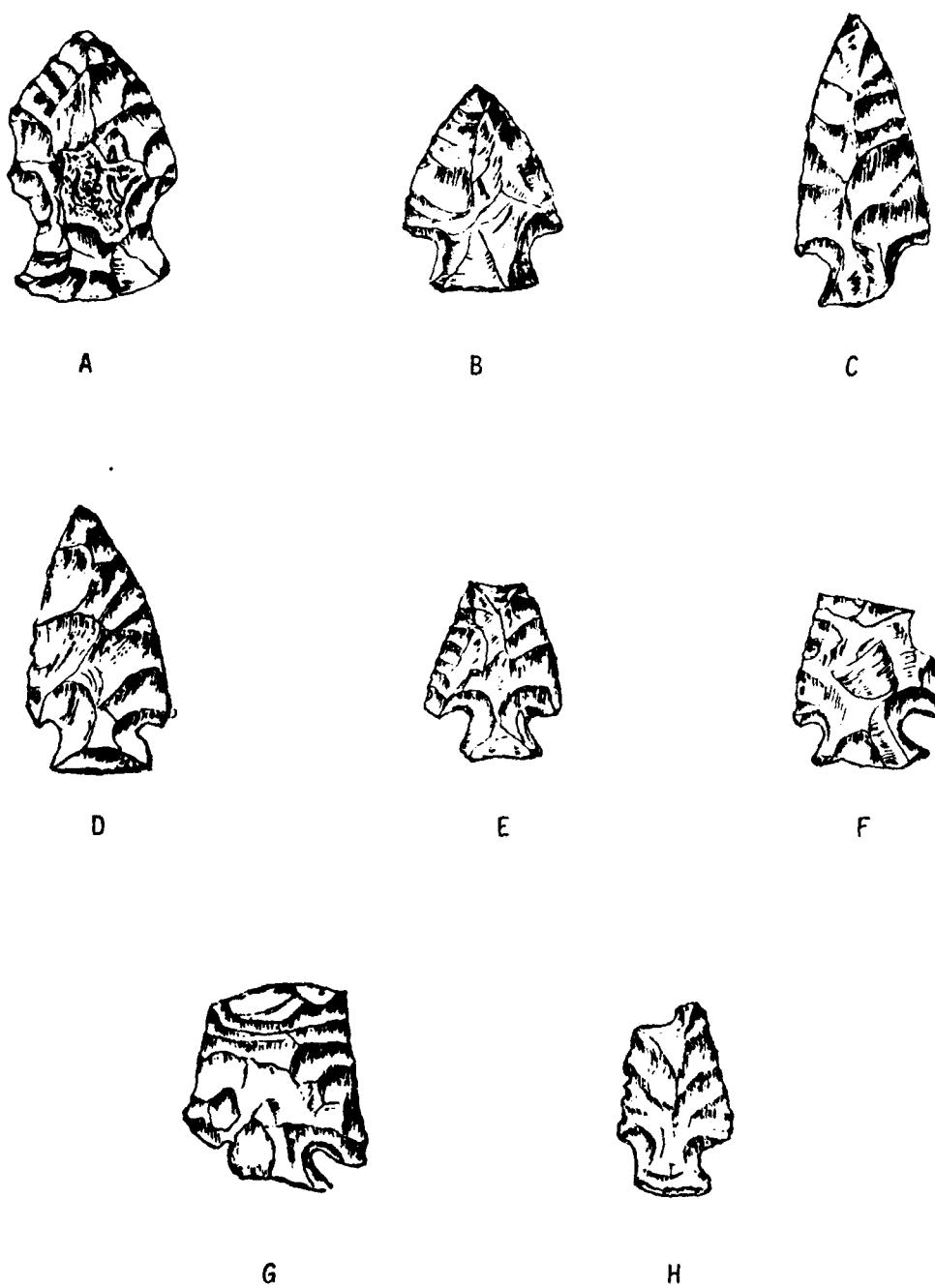


Figure 28. Selected Stemmed and Notched Projectile Points from 13BN27.
(A-B) Expanding-base stemmed points #44 and 45, respectively;
(C-H) Corner notched points #38, 595, 39, 41, 40, and 769, respectively. H is from a depth of 1.2-1.4 ft. (37-43 cm.) in Test Excavation Unit #1; all of the rest are from the surface. Actual size

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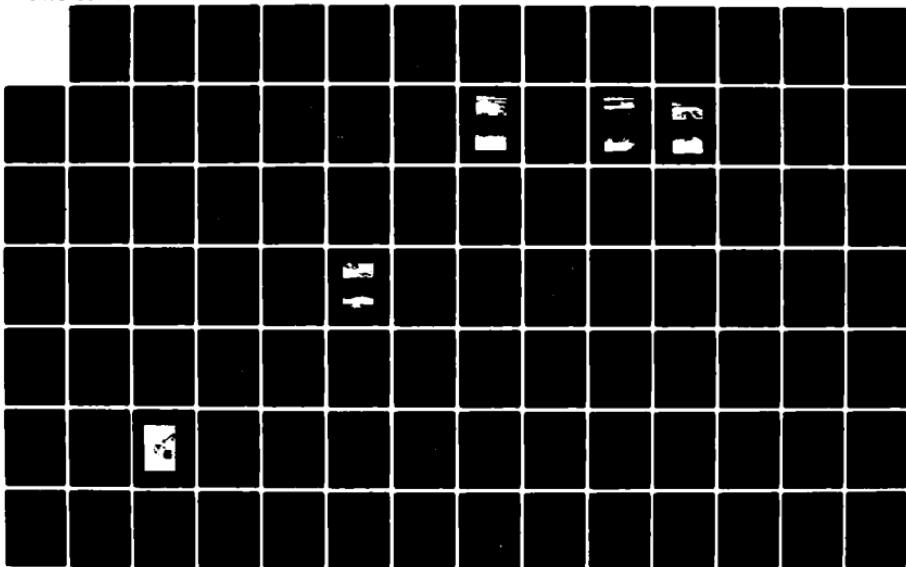
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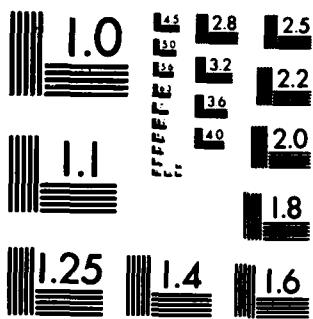
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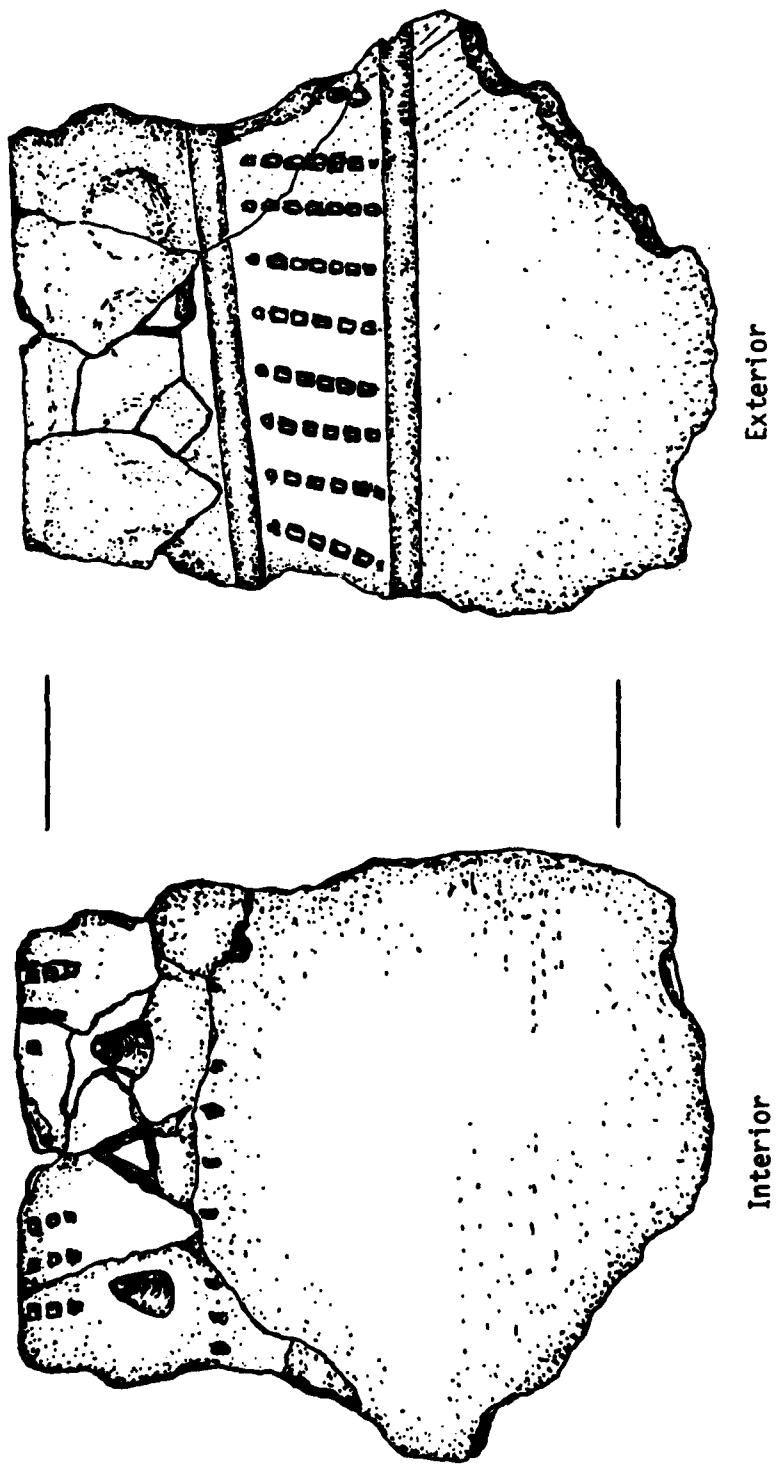


Figure 29. Naples Dentate Stamped Rim from 13BN27. Specimen #851 with exterior bosses, trailld lines, and dentate stamping over a surface treatment of fine combing and smoothing. The interior has two dentate-stamped zones separated by a line of punctations. The piece is from 0.8-1.2 ft. within Test Square #1. Actual size.

Archaeological Field School. Deviations from the strategy included the use of probing transects rather than a gridded probing scheme and a decision, based on the results of shovel-assisted survey pits dug over the entire field in addition to the soil probe transects, to concentrate further tests at this time in the north half of the field in lieu of placing a second backhoe trench perpendicularly to the terrace line in the southern portion of the field. Should further investigation of the site be feasible, backhoe exploration in the southern portion of 13BN27 should be considered for the stratigraphic information it could provide.

Results of Testing at Site 13BN27

The results of the tests conducted at 13BN27 corroborate earlier assumptions, based on the classes and relative abundance of archaeological material collected from the site's surface since 1967, that this was the location of one or more prehistoric domestic encampments ranging in cultural affiliation from Middle Woodland with Hopewellian affinities, to late Middle Woodland, to Late Woodland and/or Great Oasis. Domestic debris from the occupation of the valley by coal-using Euro-American settlers in the mid to late-nineteenth and into the twentieth centuries exists as a veneer over the prehistoric deposits.

On the riverine terrace surface back from the terrace escarpment it has been demonstrated that much of a later Middle Woodland cultural horizon remains in primary context immediately below the plowzone to a depth of 1.4 ft. (43 cm.). Associated with this horizon is Feature 1, a concentration of broken pottery segments, fired clay, calcined bone, and charcoal extending to 1.8 ft. (55 cm.). Artifact classes isolated within this cultural horizon include ceramics, chipped stone tools, lithic source and waste materials from stone tool manufacture, calcined bone, fired clay lumps, a few small mica flakes, and some charcoal (refer to Table 5). Among the numerous grit tempered ceramic pieces collected, those with diagnostic characteristics include two rim sherds with cord-wrapped stick impressions in the lip, one body sherd with a small external punctate, and two rim/shoulder segments (see Figure 27) with gently outcurved rims and smoothed-over cord roughened external surface treatment. Five additional rim sherds are similar to these latter but are too small to determine neck and shoulder configuration and one gently curving shoulder with cord-roughened surface treatment is analogous but lacks a rim. These ceramics are typologically similar to Levsen Punctated and Spring Hollow Plain types as these are defined for northeastern Iowa and southwestern Wisconsin in late Middle Woodland contexts (Logan 1976: 94-95, 98, 174) and to Weaver Cordmarked and Weaver Plain in the central Illinois Valley (Griffin 1952: 121-122). Diagnostic chipped stone tools present with this pottery include the basal portion of an expanding-base stemmed projectile point and a medium to small-sized broadly corner-notched point (Figure 28,H). Ecofactual materials from this horizon are present though sparse: One of the larger calcined bone fragments from Feature 1 has been tentatively identified as a deer phalange, and water flotation processing of the Feature 1 fill has produced minute bits of bone and calcined bone plus a charred nut shell fragment and wood charcoal, in addition to tiny chert pressure flakes and small pottery sherds.

There is scant evidence to show that earlier cultural horizons are extant below that attributed to late Middle Woodland on the terrace surface in the area of Test Excavation Unit #1 (refer to Figure 24). However, evidence of an earlier Middle Woodland habitation at the site is available in the form of Havana Ware ceramics from the surface collections, from one of the shovel-assisted survey pits, and from one of the hand-dug test squares. Characteristic attributes of this ware present at 13BN27 include bold cord-wrapped stick impressions -- usually found on or below the lip on the rim interior. Often, but not in all cases, these punctations result in low-relief bosses on the vessel exterior. Cord-wrapped stick impressions, dentate stamping, or barred ovoid stamps (see Figure 30,A) may also be present on the vessel exterior over smoothed cord roughening or fine-combing surface treatment. These design elements are often zoned, with incised or trailed lines marking the separation between the zones. Typologically the ceramic fragments found thus far at 13BN27 are analogous to Havana Zoned, Naples Dentate Stamped, and Naples Ovoid Stamped types described for the Illinois River Valley in central Illinois (Fowler 1952: 146-147; Griffin 1952: 105-113), the Mississippi Valley in southeastern Iowa (Straffin 1971: 56), and the Cedar River Valley in eastern Iowa (Benn and Thompson 1977: 9-10).

At 13BN27, on the terrace escarpment in the southwestern-most shovel-assisted survey pit between depths of 1.0-2.0 ft. (30-61 cm.), one cord-roughened sherd with an internal punctate and external boss was recovered and appears to be Havana Ware. However, the most classic example of Havana Ware ceramics at the site is a Naples Dentate Stamped rim and shoulder segment (Figure 29) found in Test Square #1 at 0.8 to 1.2 ft. (24-37 cm.) below the surface in presumed undisturbed context (see Figure 24). This provenience is immediately below the plowzone and into the terrace deposits. The puzzling aspect of finding this piece in this provenience is that below it, between depths of 1.2-2.0 ft. (37-61 cm.) and also in presumed primary context, were two pottery segments (one of which is shown in Figure 31,E) more typical of Late Woodland or Great Oasis ceramics which are thought to postdate the Middle Woodland manifestations in the central Des Moines River Valley by several hundred years (cf. Gradwohl 1974: 94-95, 97). Because the soils on the terrace are very sandy it is possible that evidence for soil mixing, such as old rodent burrows or ancient pits or drainage channels, has been obliterated by rapid leaching and may explain the apparent superimposition of older materials over those of a more recent occupation. The Havana sherd from the shovel-assisted survey pit plus the presence of the Naples Stamped rim are the diagnostic indications of a Middle Woodland component below the level of plow disturbance at 13BN27. Cultural materials were recovered in other pits and test squares from depths up to 2.0 ft. (61 cm.) below the surface, but the ceramic pieces are the only diagnostic items.

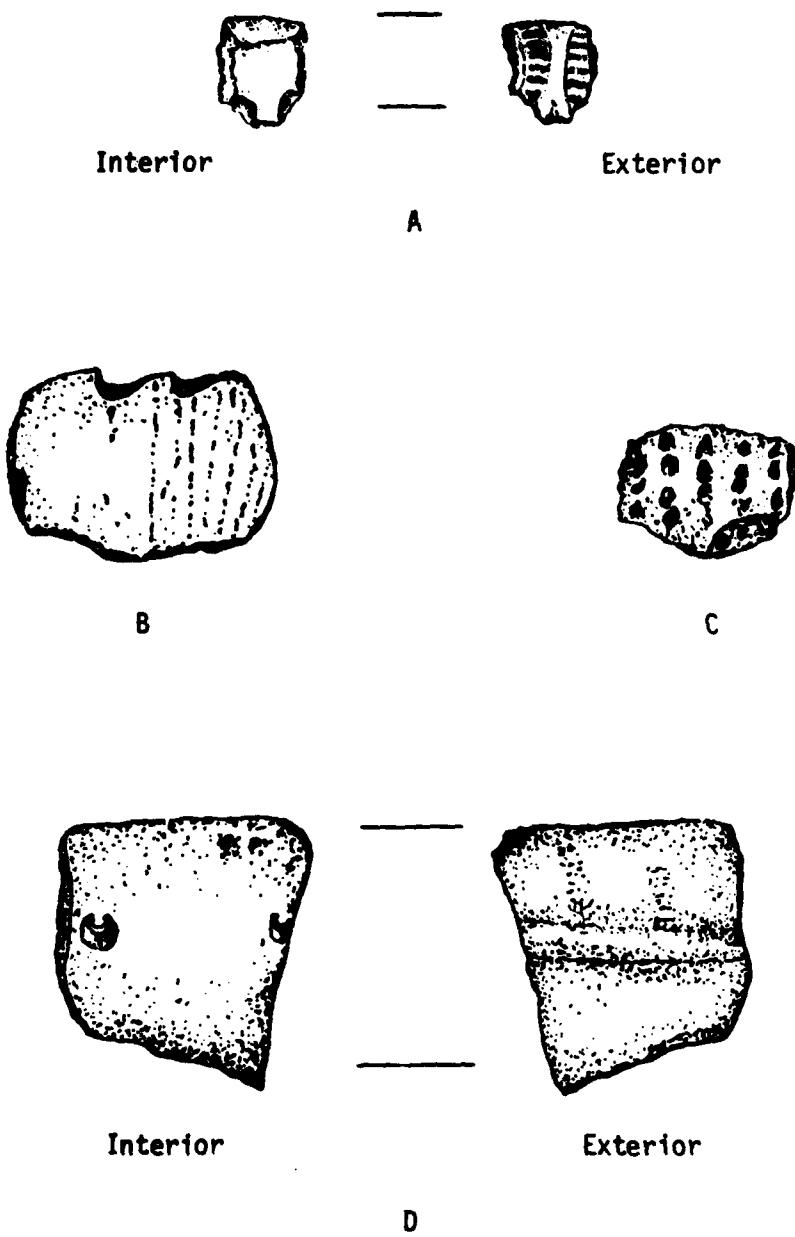


Figure 30. Selected Middle Woodland Ceramics from 13BN27. (A) Naples Ovoid Stamped rim #9 with interior punctates, (B) Rim #5 with cord-wrapped stick or tool impressions in the lip, (C) Bodysherd #454 with impressions of heavy cordage as a surface treatment, (D) Rim #13 with faint exterior cord-wrapped stick impressions and a trailed or brushed line and interior punctates. All pieces are from the surface. Actual size

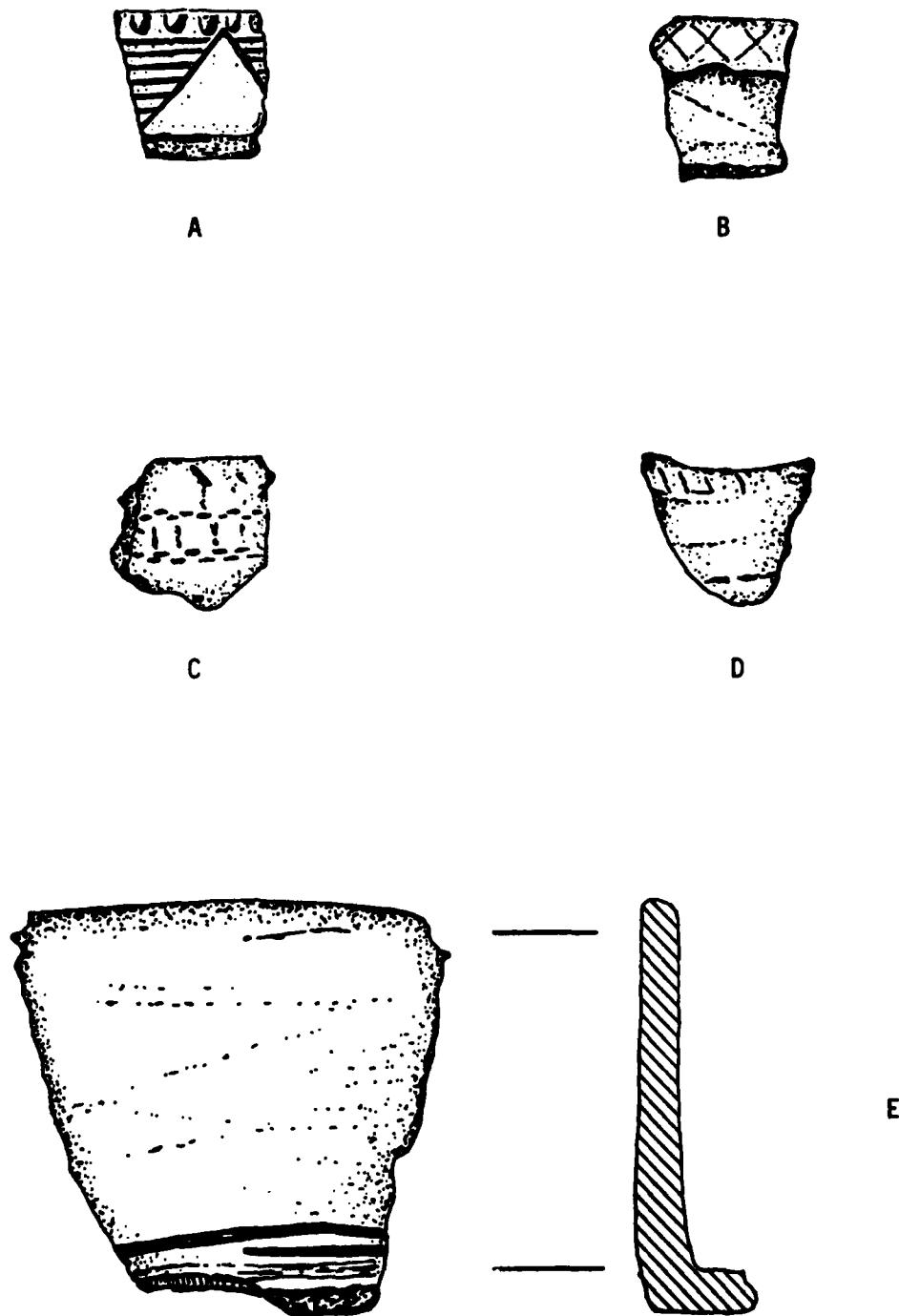


Figure 31. Selected Great Oasis and Late Woodland Rims from 13BN27. (A) Great Oasis Incised rim #1; (B) Great Oasis Decorated Wedge Lip rim #3; (C) Rim #15 with cord impressions over cord roughening; (D) "Pinch pot" rim/shoulder segment #14 with fine tool impressions in the lip; (E) High smoothed rim with neck juncture #866, shown with exterior and cross-section views. All but the latter, which is from a depth of 1.6-2.0 ft. (49-61 cm.) in Test Square #1, are from the surface. Actual size

Other than the ceramics mentioned above which were found in questionable context within Test Square #1, all of the prehistoric cultural materials at 13BN27 definitely attributable to one or more post-Woodland occupations at the site are from surface or plowzone contexts. These materials include rim types of Great Oasis Incised such as that shown here in Figure 31,A; Great Oasis Decorated Wedge Lip as defined by Alex (1980: 96-97) and shown here in Figure 31,B; Great Oasis Plain; single-cord impressed rims (e.g. Figure 31,C); and smoothed rims with fine tool impressions along the lip (e.g. 31,D). Vessel neck junctures, when available, are sharply defined and form nearly right angles between the rim and shoulder. Shoulder surface treatment is generally cord roughened, although parallel trailed lines as a decorative motif are also possible. Small triangular projectile points, either without notches, corner notched, side notched, or side and basally notched (see Figure 32) are also present and are thought to be associated with the Late Woodland and/or Great Oasis ceramic types.

The distribution of Great Oasis manifestations within the prairie-plains region includes the upper central Des Moines River Valley and northwestern Iowa, as well as southern and western Minnesota and southeastern South Dakota (Gradwohl 1974: 96-97; Henning 1971: 125-133). Radiocarbon dates from wood charcoal in Great Oasis context at the Meehan-Schell site, 13BN110, located 1.5 miles (2.4 km.) southwest of 13BN27, cluster around A.D. 1000 (Gradwohl 1974: 97). Ceramics with Late Woodland attributes are not an uncommon occurrence at Great Oasis sites (cf. Henning 1971: 127, Johnston 1967: 53-68), and certainly the four or fewer single-cord impressed specimens available after the initial testing of 13BN27 would not lead one to conclude that a major Late Woodland component distinct from a Great Oasis component existed at the site. It appears likely that the primary context of much, if not all, of the post-Woodland Great Oasis component at 13BN27, with the possible exception of deep trash pits or other features extending below the plowzone, has been totally destroyed by modern agricultural use of the land.

The same fate seems to have befallen remnants of the still-later Euro-American occupation at this location. The stoneware milkbowl and crock fragments from the surface and plowzone of 13BN27 are identical in composition, form, and surface treatment to those collected from 13BN131, the Franklin kiln area, which is located immediately to the north of 13BN27 on Stringer Creek (cf. Gradwohl and Osborn 1976: Figure 5). The predominance of this type of ceramic material over any other class of historic artifact in the sample from 13BN27, plus the presence of at least one piece of kiln furniture, strongly suggests that wasted products from the kiln on Stringer Creek, which dates to the late 19th century (Gradwohl and Osborn 1976: 172-173), were disposed of in the 13BN27 area as a matter of convenience.

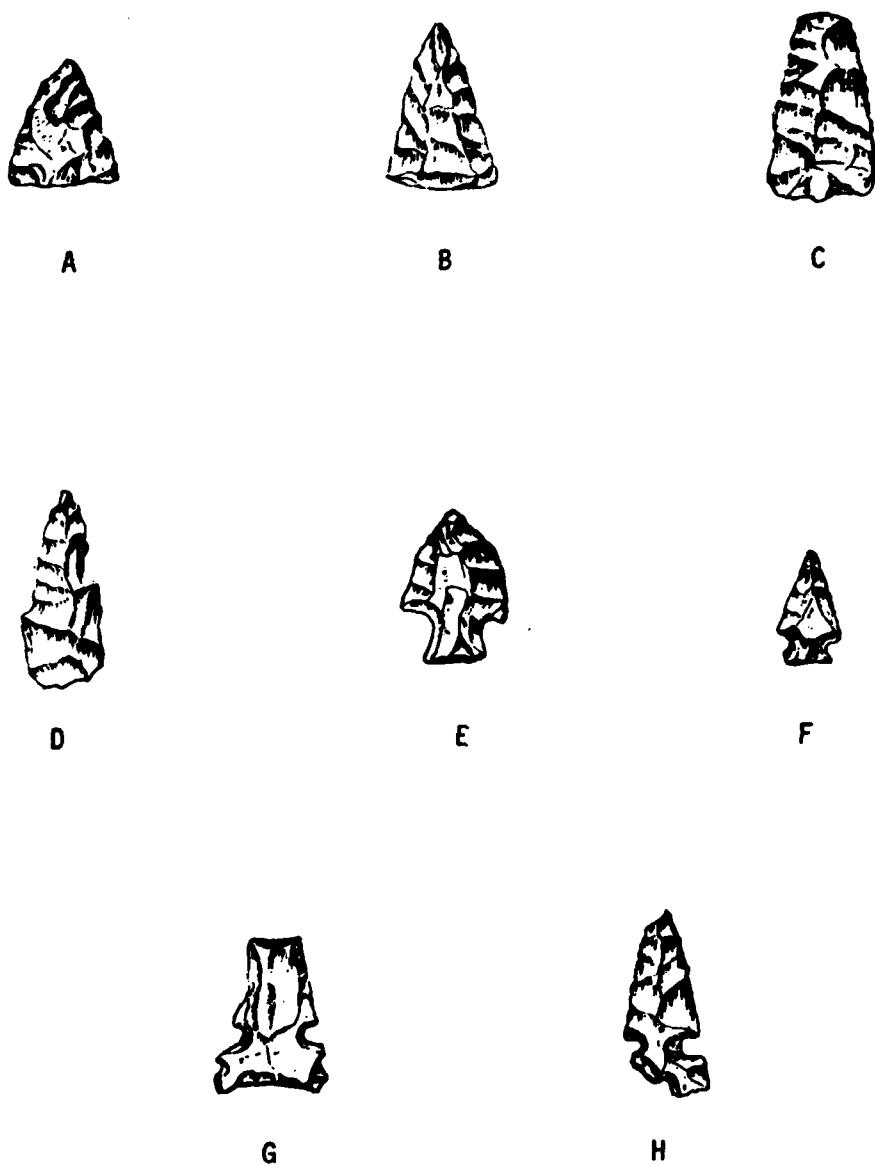


Figure 32. Selected Small Triangular Projectile Points from 13BN27. (A-D) Small plain triangular points #52, 54, 49, and 51, respectively; (E-F) Small corner notched points #42 and 43, respectively; (G) Small side notched point #37; (H) Small side and basally notched point #35. All are from the surface. Actual size

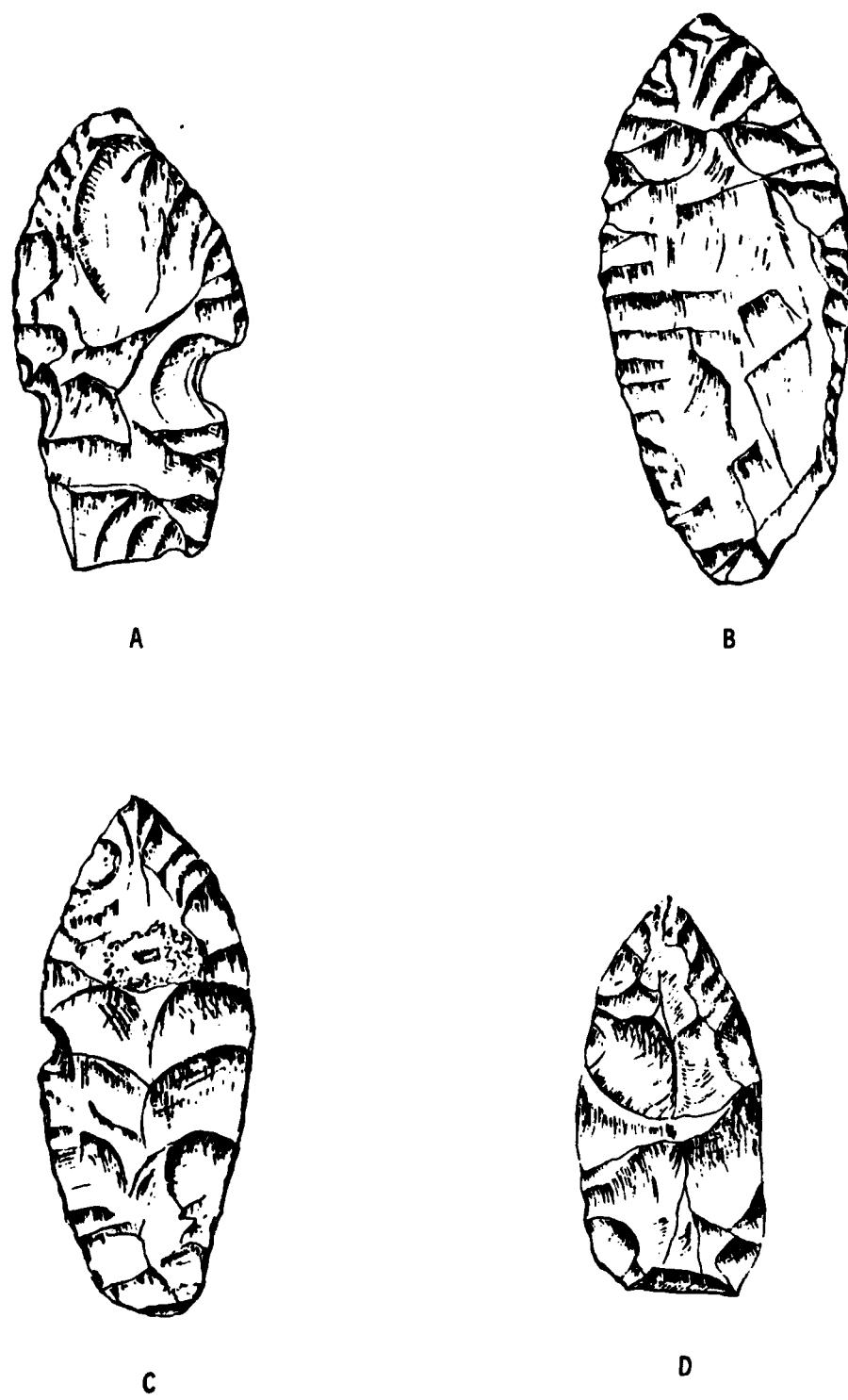


Figure 33. Selected Lanceolate Projectile Points or Thin Bifaces from 13BN27.
(A-D) Specimens #36, 96A, 779, and 778, respectively. A and B are
from the surface; C and D are from a depth of 0.8-1.0 ft. (24-30
cm.) in Test Excavation Unit #1. Actual size

In terms of answering the specific archaeological research questions posed for the central Des Moines River Valley, site 13BN27 holds the greatest potential for elucidating the nature of a late Middle Woodland occupation for the region -- a "transitional" manifestation between the Havana Middle Woodland and the Late Woodland/Great Oasis occupation of the site. Although remnants of this entire culture-temporal range is present in some form at the site, the primary context of only the late Middle Woodland materials seems assured on the basis of these tests. There is no material evidence at this time to indicate contacts here between the inhabitants of 13BN27 and people from Moingona Phase Oneota sites located downstream. Neither does there appear to be a fully-developed Late Woodland manifestation, similar to that found downstream within the Saylorville Lake project at the Saylorvillage site, 13PK165 (cf. Osborn, Gradwohl, and Thies 1978), which is distinct from the Great Oasis component at 13BN27.

Impacts of the Saylorville Lake Project on Site 13BN27

The most immediate adverse impact to be realized from the Saylorville Lake project at archaeological site 13BN27 is the effects of intermittent inundation and wave action within the upper reaches of the flood control pool up to an elevation of 890 feet above mean sea level. The sandy nature of the terrace and escarpment and the shallow deposition of cultural remains there will make this portion of the site particularly vulnerable to degradation by active flooding. Recreational impacts to the area will also occur if development plans drawn up in 1973 are carried out. These plans show that an access road, two parking lots, and foot and horse trails are to be constructed on top of the site, as well as to the north and east along Stringer Creek, in the Polecat Hill recreational satellite (refer to Plate IX, Saylorville Lake Recreation Master Plan 6B, Rock Island District, U.S. Army Corps of Engineers, 1973). Any earth-moving for the development of these facilities will completely destroy the context of all archaeological remains at 13BN27.

Recommendations for Further Work at Site 13BN27

Further archaeological work at site 13BN27 is highly recommended based upon the results of these tests. The site shows good potential for providing contextual and material culture data on the transitional period between Middle and Late Woodland prehistoric occupations of the central Des Moines River Valley. Full-scale excavation should be concentrated on the riverine terrace surface and the adjacent slopewash mantle in the northern portion of the field to retrieve as much data as is available for the late Middle Woodland component. The location of intact remnants of both earlier and later occupations is also possible at the site, but this assumption needs more examination beyond the present testing program. Additional shallow trenches and other exploratory testing procedures could be carried out in the southern portion of the field along the terrace and at the foot of the alluvial fan to check further on the southward extent of the late Middle Woodland component or portions of an earlier component which might underlie it. Such tests need not be more than 2 to 3 ft. (61-92 cm.) in depth since the likelihood of finding

deeply-buried cultural deposits here is minimal based on an analysis of the soils and landform information available. Continued exploration in the thicker alluvial fan deposits along the eastern periphery of the field is not advised since several modern houses and outbuildings, now removed, were located in this vicinity up to the late 1960s and this area has been largely disturbed.

13BN30

Environmental Context of Site 13BN30

Site 13BN30 is located on a broad low riverine terrace above the left bank of the Des Moines River and approximately one kilometer downstream from the confluence of Bluff Creek with the Des Moines in Boone County, Iowa (Figure A-14). This locus is immediately south of the Chicago and Northwestern high railroad bridge which crosses the river at this point. The site is delimited on the north and east by an abandoned and filled channel scar and on the south and west by the steep terrace escarpment to the floodplain (refer to Figure A-15). The site's position lies between 880 and 895 feet above mean sea level and covers an area of 25 to 30 acres (10 to 12 hectares). Cultivation has taken place over the site throughout the historic period, and in 1908 the Boone Mound (13BN29), a Woodland mortuary structure located within the site's limits, was excavated by T. Van Hyning of the Des Moines Museum.

The soils upon which the site is located have been mapped as Hanlon fine sandy loam, 0-2% slopes, and Dickman fine sandy loam, 1-5% and 5-9% slopes (USDA Soil Conservation Service 1981: 12, 27, 61, 63 and Sheet 38). The former is derived from loamy alluvium and the latter from eolian sand; both are moderately well drained to well drained. Native vegetation was probably forest or forest/prairie transition species.

Previous Investigations at Site 13BN30

Site 13BN30 was designated in 1964 by the Office of the State Archaeologist as "the village site in close proximity to" the Boone Mound, 13BN29, a Middle Woodland Hopewell mortuary structure which was excavated by Thompson Van Hyning of the State Historical Society Museum in Des Moines in 1908 (refer to Van Hyning 1910a, 1910b). The landowners of the property reported finding "many pieces of pottery and some flints" in the area around the mound locus and it was recommended that tests be conducted there (Ashworth and McKusick 1964: 4, 9). The Smithsonian Institution River Basin Surveys team led by Lionel Brown visited the site area in 1966 and reported observing a few chert flakes on and around the mound area but felt that these were derived from the mound itself during the 1908 excavation. Therefore, Brown recommended that the site warranted no further investigation (Brown 1966: 21).

On 14 June 1967 personnel from the Iowa State University Archaeological Laboratory first visited 13BN30 as part of archaeological investigations in Saylorville Reservoir conducted under a contract with the National Park Service. It was found that the entire field bore a surface scatter of grit tempered pottery, projectile points, scrapers and other chipped stone tools, chert cores and waste flakes, worked hematite, animal bones, and mussel shell. The ceramic decorative elements were those typical of Middle Woodland Hopewellian manifestations (cf. Gradwohl 1974: 94) -- internal punctations with external bosses, tool-impressed lips, cord-wrapped stick impressions, dentate stamping, rocker stamping, incising over cord roughening, some combing, and a few examples of zoned decoration. Projectile point styles ran the gamut from stemmed, side notched, and corner notched, to small plain triangular points. Clearly, this material represented much more than just the items discarded or unobserved in the cultural fill of Van Hyning's Boone Mound excavation. In addition, historic domestic ceramics of the mid to late nineteenth and early twentieth centuries were also collected from the surface of the field. Information on the site was summarized for the U.S. Army Corps of Engineers-Rock Island District in 1973 in a roster of all archaeological sites then known to occur in the Saylorville Lake project (Gradwohl and Osborn 1973b: 34). A more extensive discussion of the historical background and available archaeological data from 13BN29 and 13BN30 was prepared for and presented to the National Park Service in a contract completion report (Gradwohl 1975: 218-234).

Little more was done at the site until May of 1975, when Iowa State University conducted the intensive survey of Reconnaissance Unit 16, part of a larger archaeological reconnaissance program for the upper portion of Saylorville Lake. Although the western portion of the site had been acquired by the Federal Government by that time, the entire field was still under cultivation for row crops and an abundant amount of grit tempered pottery, chipped stone tools, two fully-grooved axes, a celt blank, ground stone hematite, core fragments, shatter and waste flakes -- two of the latter of which were obsidian -- were recovered from the surface. Historic china, stoneware, glass, and metal was also observed and collected. These additional materials plus the information known from earlier surveys for 13BN30 were reported to the Corps in 1976 with the recommendation that extensive tests be made of the village area to determine the nature of the occupation (Gradwohl and Osborn 1976: 157-161).

Subsequent visits to 13BN30 between 1976 and 1980 added more than eight hundred artifacts to the site inventory (refer to Table 6). These materials included many more decorated Woodland pottery rims and body sherds, chipped stone tools and lithic debitage, ground stone, animal bones, and mussel shell. Obsidian was again found in the form of two utilized flakes and two waste flakes. Copious stoneware pieces, plus china, glass, metal, and a saw-cut bone from the Euro-American pioneer period were collected as well.

PREHISTORIC ARTIFACTS	Total	Materials Collected Prior to Testing	Materials Collected During Testing	Surface (cultivated field)	Ap or Blowzone (plus unsifted backfill from test units)	A3/B soil horizons 0.9-2.0 ft. (27-61 cm.) within test units	Feature 1 (defined in A3 soil horizon)	Feature 2 (defined in A3 soil horizon)
Ceramics								
Decorated Woodland rim and/or body segments (primarily Havana Ware)	267	249	18	249	3	15	-	-
Cord marked or smoothed grit tempered vessel segments (including rims & conical bases)	3697	3390	307	3421	87	180	-	9
Chipped Stone								
Stemmed projectile points & point fragments	10	10	-	10	-	-	-	-
Medium-sized side or corner notched points	8	8	-	8	-	-	-	-
Small triangular side or corner notched points	2	1	1	1	1	-	-	-
Small plain triangular projectile points	16	16	-	16	-	-	-	-
End scrapers	8	8	-	8	-	-	-	-
Drills	2	2	-	2	-	-	-	-
Graver/perforators & burins	8	8	-	8	-	-	-	-
Thin bifaces (including point segments)	24	22	2	23	1	-	-	-
Thick bifaces	5	5	-	5	-	-	-	-
Retouched flake/scrapers	8	6	2	6	1	1	-	-
Retouched flakes (including 1 obsidian piece)	42	41	1	42	-	-	-	-
Utilized flakes (including 1 obsidian piece)	197	193	4	193	2	2	-	-
Chipped Stone Source & Waste Material								
Cores & core fragments	29	29	-	29	-	-	-	-
Shatter chunks	69	63	6	64	1	4	-	-
Waste flakes (including 4 obsidian pieces)	1634	1574	60	1583	26	25	-	-
Ground Stone								
Fully grooved axes	2	2	-	2	-	-	-	-
Pecked and ground stone tools (including a salt blank, hammerstones, anvil stone, & fragments)	20	20	-	20	-	-	-	-
Worked hematite	2	2	-	2	-	-	-	-
Unworked Stone Source Materials								
Chert cobbles	5	4	1	4	1	-	-	-
Hematite	30	1	29	2	15	13	-	-
Fire-cracked rock (granite & diorite)	10	-	10	2	-	2	5	-
HISTORIC ARTIFACTS								
Ceramics								
Porcelain & ironstone vessel fragments	75	75	-	75	-	-	-	-
Stoneware vessel fragments (plus 2 pipe bowls and a piece of kiln furniture)	256	255	1	255	1	-	-	-
Glass								
Clear, brown, green, blue & milkglass container fragments	15	15	-	15	-	-	-	-
Milkglass preserve jar lid liners	3	3	-	3	-	-	-	-
Melted glass fragment	1	1	-	1	-	-	-	-
Metal								
Steel scissors	1	1	-	1	-	-	-	-
Brass & iron buckles	3	3	-	3	-	-	-	-
Large iron cut nail	1	1	-	1	-	-	-	-
Miscellaneous iron fragments (including wire, nails, barbed wire, etc.)	7	4	3	4	3	-	-	-
Bone								
Saw-cut bone (from cut of meat)	1	1	-	1	-	-	-	-
ECOLOGICAL MATERIALS								
Inseffable bird & mammal bones & teeth (in-	24	24	24	24	24	24	24	24

<u>Small plain triangular projectile points</u>	16	16	-	16	-	-	-
End scrapers	8	8	-	8	-	-	-
Drills	2	2	-	2	-	-	-
Graver/perforators & burins	8	8	-	8	-	-	-
Thin bifaces (including point segments)	24	22	2	23	1	-	-
Thick bifaces	5	5	-	5	-	-	-
Retouched flake/scrapers	8	6	2	6	1	1	-
Retouched flakes (including 1 obsidian piece)	42	41	1	42	-	-	-
Utilized flakes (including 7 obsidian pieces)	197	193	4	193	2	2	-
<u>Chipped Stone Source & Waste Material</u>							
Cores & core fragments	29	29	-	29	-	-	-
Shatter chunks	69	63	6	64	1	4	-
Waste flakes (including 4 obsidian pieces)	1634	1574	60	1583	26	25	-
<u>Ground Stone</u>							
Fully grooved axes	2	2	-	2	-	-	-
Pecked and ground stone tools (including a celt blank, hammerstones, anvil stone, & fragments)	20	20	-	20	-	-	-
Worked hematite	2	2	-	2	-	-	-
<u>Unworked Stone Source Materials</u>							
Chert cobbles	5	4	1	4	1	-	-
Hematite	30	1	29	2	15	13	-
Fire-cracked rock (granite & diorite)	10	-	10	?	-	2	5
HISTORIC ARTIFACTS							
<u>Ceramics</u>							
Porcelain & ironstone vessel fragments	75	75	-	75	-	-	-
Stoneware vessel fragments (plus 2 pipe bowls and a piece of kiln furniture)	256	255	1	255	1	-	-
<u>Glass</u>							
Clear, brown, green, blue & milkglass container fragments	15	15	-	15	-	-	-
Milkglass preserve jar lid liners	3	3	-	3	-	-	-
Melted glass fragment	1	1	-	1	-	-	-
<u>Metal</u>							
Steel scissors	1	1	-	1	-	-	-
Brass & iron buckles	3	3	-	3	-	-	-
Large iron cut nail	1	1	-	1	-	-	-
Miscellaneous iron fragments (including wire, nails, barbed wire, etc.)	7	4	3	4	3	-	-
<u>Bone</u>							
Saw-cut bone (from cut of meat)	1	1	-	1	-	-	-
ECOLOGICAL MATERIALS							
Identifiable bird & mammal bones & teeth (including raccoon, deer, bison & gopher)	24	24	-	24	-	-	-
Unidentifiable bone fragments	13	11	2	11	-	2	-
Calcined bone fragments	178	178	-	178	-	-	-
Freshwater mussel shell & shell fragments	211	203	8	203	8	-	-
Burned earth & ash samples	10	-	10	1	3	6	-
Wood charcoal samples	10	-	10	-	2	7	-
	6904	6429	475	6476	155	258	5 10

Table 6. Tabular Summary of Archaeological Materials Recovered from Site 13BN30. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.

Statement of Research Objectives for Site 13BN30

One of the formal research questions posed for the Saylorville project area is specifically oriented toward discovering relationships between the Middle Woodland Havana tradition as it is manifested at 13BN29 and 13BN30 and similar Middle Woodland components which have been documented elsewhere -- both within the Des Moines trench as well as further afield in the more classic Hopewellian sites east of the Mississippi. The archaeological testing of site 13BN30, it was hoped, could provide insights into whether the site retains the potential for answering this research question, particularly in light of the rather extensive surface collections which have been made from the site area since 1967, as well as the excavation of a Middle Woodland Hopewell mortuary structure (13BN29, the Boone Mound) there in 1908. Burial mounds recorded for the central Des Moines Valley and attributed to the Woodland cultural period are commonly found in remote positions on upland surfaces (Gradwohl 1974: 94). However, the Boone Mound exhibited the distinctly Hopewellian pattern (cf. Willey 1966: 273-276) of a low, flatland location with an internal chambered stone and log structure within which disarticulated human bones and cremations had been deposited (Harlan 1908; Van Hyning 1910a, 1910b). An abundant surface scatter of broken ceramics, chipped stone tools (which Van Hyning reported to have been sparse in the mound fill), ground stone axes and hammerstones, lithic source and waste materials, calcined bone, and freshwater mussel shells were found in the 1960s to be widely distributed across the terrace on which the mound once stood, and this suggested that a domestic settlement, probably associated with the erection and use of the mortuary structure, had been established adjacent to the Boone Mound. As such, this settlement at 13BN30 would have served as a "center" for interaction with other habitation sites of the Middle Woodland period in the central Des Moines trench (cf. Willey 1966: 279) -- sites which are distinguished by Havana Ware ceramics and other material traits linking them to larger and more classic Hopewellian complexes documented along the Mississippi, Illinois, and Ohio River vallies.

Toward the goal of satisfying this research question, then, the first objective for 13BN30 was to verify the presence and extent of a Middle Woodland cultural zone in the area surrounding the mound's former position and to ascertain the degree to which these cultural remains had retained their contextual integrity. A second objective was to demonstrate whether or not other cultural components might be found at this location in addition to the Middle Woodland occupation and to determine how these relate temporally to that occupation. Thirdly, the results of the tests conducted at 13BN30 would be compared with the data collected from other archaeological sites in the project area for which Middle Woodland Hopewell traits had been recorded in hopes that a pattern of interaction between these sites might be revealed. Of particular interest would be the documentation of cultigens within Middle Woodland contexts, reflecting a horticultural development within this cultural horizon not yet documented within the central Des Moines River Valley. This problem is addressed by one of the other formally-posed research questions for the Saylorville area.

Statement of Methodology at Site 13BN30

As at other sites tested under this contract, the decision was made at 13BN30 to scuttle the gridded plan proposed for soil probing in favor of several transects of more-closely spaced 2-inch (5-cm.) diameter solid-core probes taken with a hydraulic soil probe mounted on a truck. This was done early in December of 1980 after a study had been made of available aerial photos from the USDA-Soil Conservation Service for the area, the earliest of which was taken in 1939. On that photo the former location of the Boone Mound shows as a light circular area in the field; other small light patches seem apparent along the terrace edge to the south of the mound area. However, in later aerial photos none of these show with any clarity. The probing transects were placed across the field such that, in addition to obtaining cores through the major geomorphological features, the soils on the terrace edge where the light patches showed were extensively sampled, and for control purposes, probes were also placed to the east of the former location of the mound (refer to Figure 34). Within two of the cores taken along the terrace margin, cultural remains were brought up with the soil matrix: Core #26 produced six small grit tempered sherds from a depth of 0.9 ft. (27 cm.) near the plowzone contact and Core #31 revealed a chert waste flake from a depth of 2.0 ft. (61 cm.). All cores were taken to a depth of at least 4 ft. (122 cm.), and as a further control two were taken on down to 8 ft. (244 cm.). No apparent buried soil horizons were encountered and the top of the C soil horizon was indicated in most areas to begin at a depth between 2.0 and 2.5 ft., or 61-76 cm. (refer to Appendix C).

Testing at 13BN30 was resumed in March of 1981, starting with the excavation of exploratory backhoe trenches to provide vertical profile data. Each trench was 2.0 ft. (61 cm.) in width. Trench #1 was oriented east/west through the terrace surface and over the terrace escarpment and ran for a distance of 75 ft., or 24.6 m. (refer to Figure 35). Maximum depth of the trench was 3.5 ft. (107 cm.). One very eroded grit tempered body sherd was recovered from the B₁ soil horizon at 1.1 ft. (34 cm.) -- the only definite indication of a sub-plowzone cultural deposit found within this trench. The C soil horizon began between 2.8 and 3.8 ft. (85-116 cm.) below the surface and was most shallow near the terrace escarpment. Trench #2 was oriented in a northwest/southeast direction near the terrace edge and parallel to the escarpment in one of the areas in which the light patches had been observed on the 1939 aerial photo. The length of this trench was 50 ft. (16.4 m.) and the maximum depth was 2.5 ft. (76 cm.). Trench #3 was made to intersect at a right angle with Trench #2 and to extend toward the terrace edge. This trench was 30 ft. (9.8 m.) long and 3.0 ft. (92 cm.) deep. Cultural materials recovered from these two trenches include a waste flake and a grit tempered sherd from 1.0 ft. (39 cm.), at the plowzone contact.

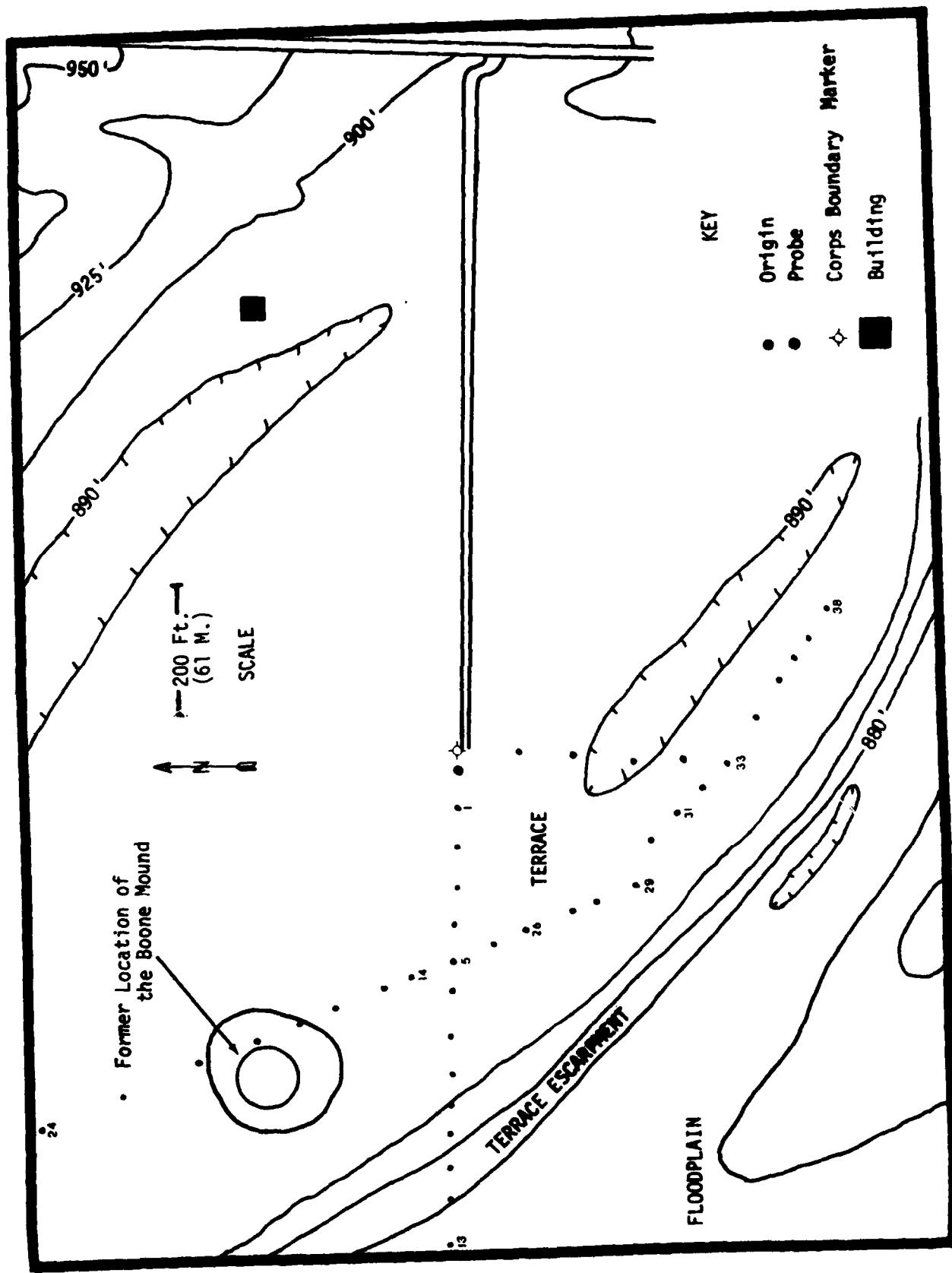


Figure 34. General Geomorphology and Placement of Soil Probing Transects at Site 13BN30. The Federal property boundary corresponds to the east/west access road and to a traverse due north of the Federal boundary marker

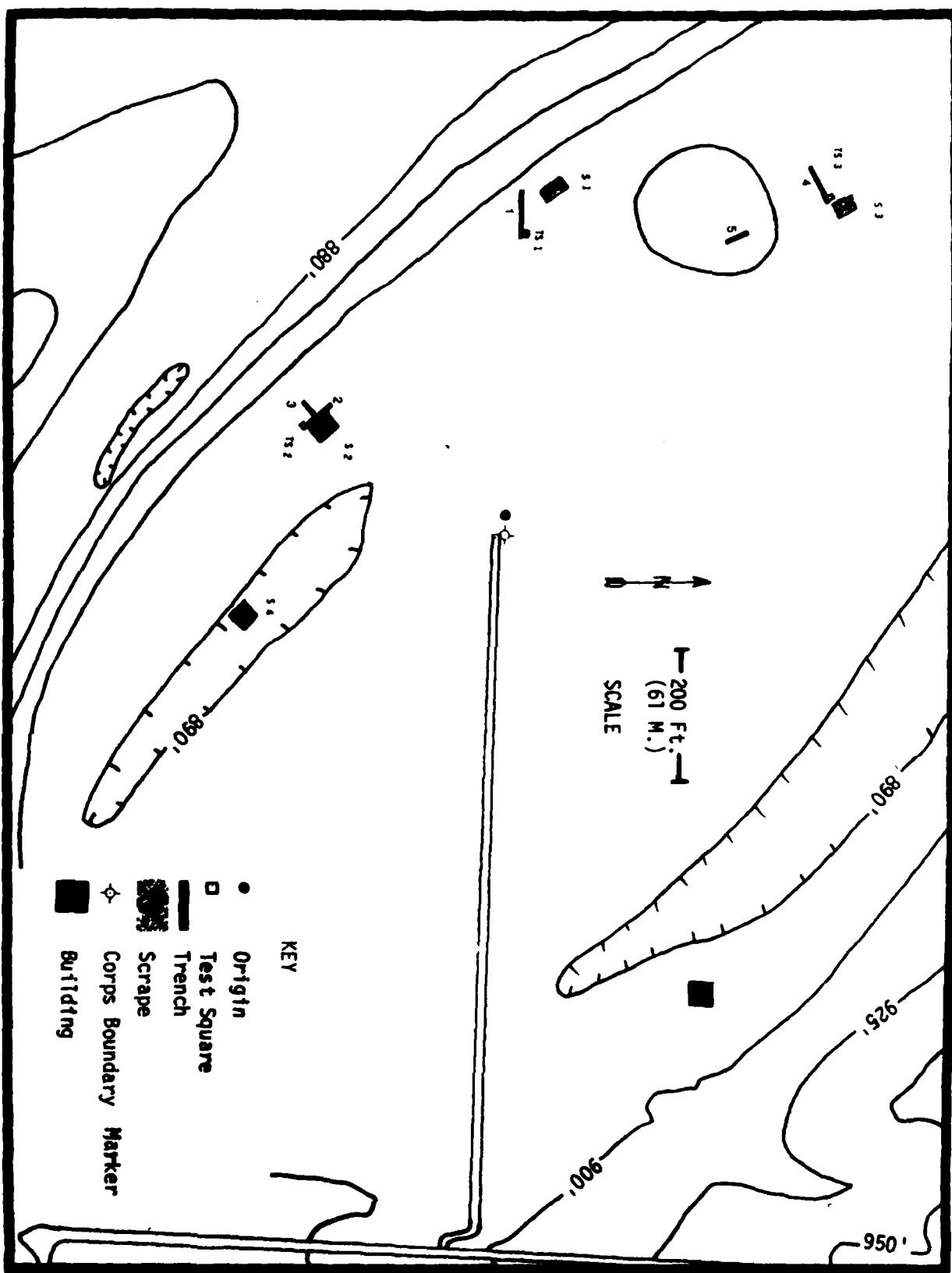


Figure 35. Placement of Test Trenches, Horizontal Scrapes, and Test Squares at Site 13BN30.

with the A₃ soil horizon; a second sherd from 1.3 ft. (40 cm.) within the A₃ horizon; and a waste flake, a piece of chert shatter, and a third sherd with cord roughened surface treatment from the 1.5-1.6 ft. (46-49 cm.) level in the B₃ soil horizon. Although a cultural zone is apparent, there did not seem to be any distinct indication of a house floor or similar feature exposed in cross-section, and the soil scientist and archaeologists together felt that the patches on the aerial photo were likely due to natural ground conditions at the time the photo was taken rather than to extensive cultural earthworks.

Trench #4 was laid out to the north of the former position of the Boone Mound and was oriented southwest/northeast (Figure 35). The trench's length was 45 ft. (14.8 m.) and its final depth was carried to 4.0 ft. (122 cm.). The soil here appeared to be cumulic and to have been more water laden than the soils exposed in any of the other trenches; the developed soil column was deepest in this trench. The occurrence of surface artifacts is relatively sparse in this area of the field and no cultural materials were recovered from this trench. Trench #5 was positioned in a northwest/southeast orientation along what was judged to be the former eastward limit of the mound in an attempt to define the interface between that excavated structure and the surrounding area (see Plate 8). This trench was 40 ft. (13.1 m.) long and 3.0 ft. (92 cm.) deep. The fill was found to be mixed and exhibited no true soil development above a depth of 1.2 ft. (37 cm.) below the surface. The plowzone here is shallow -- no greater than 0.6 ft. (18 cm.) deep anywhere along the trench profile. Between 0.8 and 1.2 ft. (24-37 cm.) in depth the ends of the backfilled excavation trenches from 1908 were distinctly visible. These probably correspond to the level at which the stone slab floor was exposed near the base of the mound by Van Hyning's crew (cf. Van Hyning 1910a: 161-162). No limestone from that floor was encountered in Trench #5, but grit tempered body sherds, a chunk of quartzite shatter, a piece of unidentified bone, freshwater mussel shell fragments, and bits of charcoal and burned earth were retrieved from the fill. All are apparently from disturbed context and occur in fill removed during the systematic excavation in 1908 and redeposited horizontally at least 5 ft. (1.5 m.) from original placement within the mound (cf. Van Hyning 1910a: 158).

From the data gathered thus far it was determined that part of at least one cultural component, probably Woodland, did remain intact at 13BN30 from the plowzone contact to at least 1.6 ft. (49 cm.) below the surface. This cultural horizon was likely to be encountered on the terrace surface to the south of the former location of the Boone Mound. It was also learned that excavation near the mound's position would not be profitable since little primary context is left there due to excavation, back-filling, and levelling off of the mound in the early twentieth century (see Plate 9).



Plate 8. Mapping in Progress of the Vertical Profiles within Trench #5 at Site 13BN30. View is to the north



Plate 9. Students of the Iowa State University Archaeological Field School Lined Up across the Former Location of the Boone Mound, 13BN29, in the Summer of 1979. The mound was levelled after excavation in 1908 to facilitate cultivation. View is to the west

For finer vertical and horizontal control the tests conducted at 13BN30 included the digging of three test squares by hand adjacent to three of the machine-dug trenches (refer to Figure 35). Each was 5 ft. (1.5 m.) square and was dug by shovelling and sifting the fill through 1/2-inch mesh hardware cloth screens. Test Square #1 was placed near the east end of Trench #1 and was dug to a depth of 2.0 ft. (61 cm.). The plowzone yielded five prehistoric grit tempered sherds, hematite and shale, and a historic stoneware vessel base sherd. Between 0.9 and 1.3 ft. (27-40 cm.), directly below the plowzone, were recovered 18 grit tempered body sherds, two of which were cord roughened; a utilized flake; a piece of unworked hematite; and some burned earth. On the surface near this test square was found a retouched flake of black obsidian. Test Square #2 was located at the southward end of Test Trench #2. This square was also dug to 2.0 ft. (61 cm.), recovering cultural materials continuously to a depth of 1.1 ft. (34 cm.). From the plowzone these include 17 grit tempered body sherds, two waste flakes, a piece of unworked hematite, and historic metal in the form of barbed wire and a wire nail. A small side notched chalcedony projectile point (Figure 45, B), one undecorated grit tempered rim fragment and 20 body sherds, two waste flakes, three pieces of unworked hematite, and burned earth were found at the plowzone contact, and directly below the plowzone were found two crumbled rim fragments decorated with punctations and cord-wrapped stick impressions (one of which is shown in Figure 39, A), one cord roughened base sherd, a dentate stamped body sherd, 19 cord roughened and/or smoothed body sherds, a retouched flake/scrapers, one waste flake, five pieces of unworked hematite, and a small amount of charcoal. Test Square #3 was placed at the eastward end of Trench #4 and dug to a depth of 1.2 ft. (37 cm.). As within the nearby trench, no archaeological or ecological remains were recovered.

To sample the horizontal context of cultural remains in primary deposition just below the plowzone contact, four separate scrapes within the site were made with a front-end bucket loader (refer to Figure 35). Since the Iowa Conservation Commission had leased the land for "no-till" cultivation only, and the ground surface remained relatively compact, the removal of the plowzone for archaeological testing was facilitated by first loosening the stalk-covered ground with a mold-board plow in each of the areas to be scraped (Plate 10). The plowzone could then be more rapidly and smoothly removed with the mechanical bucket (Plate 11). Each scrape was then quickly cleaned by shovel skimming to check for features and cultural remains just below the plowzone (Plate 12).

Scrape #1 was placed on the terrace surface to the north of Trench #1 and covered an area of 425 square ft. (46 square m.). Cultural materials were discovered in place immediately below the plowzone, so a portion of the scraped area was gridded for control purposes into 5-ft. (1.5-m.) square units and the fill was shovel skimmed and sifted. Artifacts and



Plate 10. Loosening the Flowzone at Site 13BN30 with a Mold-Board Plow in Preparation for Scrape #4. View is to the east northeast



Plate 11. Mechanical Removal of the Flowzone within Scrape #3 at Site 13BN30. View is to the southeast



Plate 12. Shovel Skimming at the Plowzone Contact after Mechanical Removal of the Plowzone had Occurred at Site 13BN30 within Scrape #2. View is to the north northwest

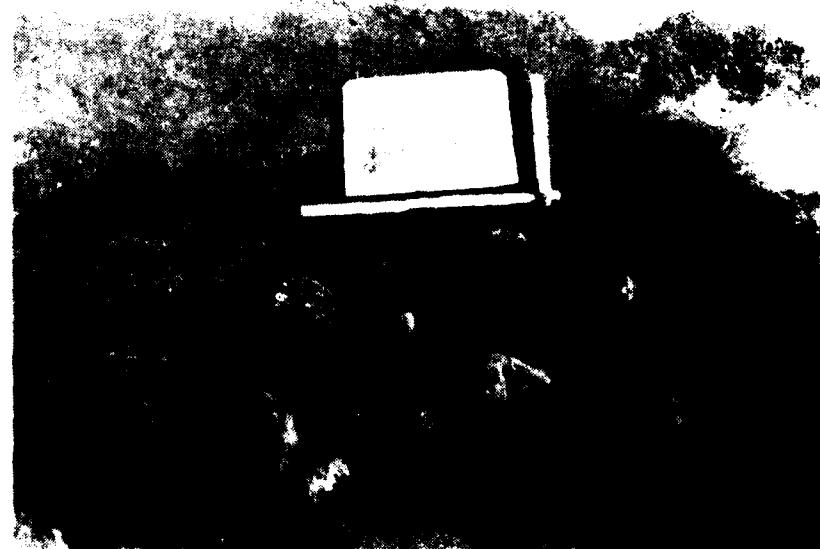
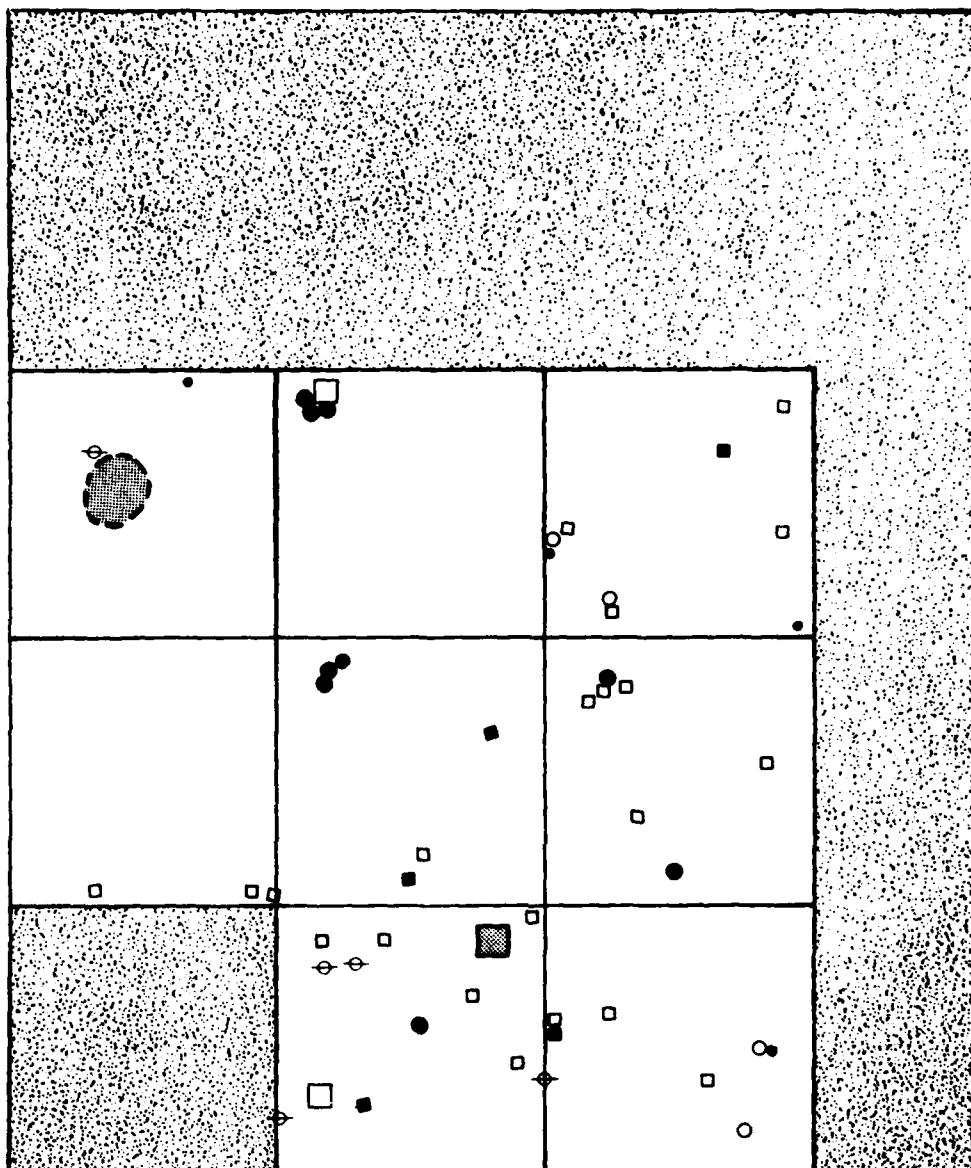


Plate 13. Feature 1, Rock-Lined Roasting Pit, after the Northern Portion Had Been Excavated at Site 13BN30. View is to the east

other culturally-derived materials were piece-plotted on a map as these were encountered (Figure 36). Between depths of 0.8 and 1.4 ft. these materials include 12 vessel rim and neck segments, most of which are cord-wrapped stick impressed on the interior, exterior, and/or lip surface and have interior punctations; two conical base sherds; two dentate stamped body sherds (one of which is shown in Figure 41,D); 105 cord roughened or smoothed body sherds; one utilized flake; 21 waste flakes; two chunks of chert shatter; one fragment of bone; four pieces of un-worked hematite; and samples of burned earth, ash and charcoal. In addition, two features were designated: Feature 1 is a circular concentration 1.6 ft. (49 cm.) in diameter of cobbles and cracked granite chunks which is believed to be a rock-lined hearth or roasting pit (Figure 36 and Plate 13); Feature 2 is the basal portion of a conical vessel with smoothed-over cord roughened surface treatment (Figure 37). It appeared that the top portion of the vessel had been hit by the plow and those pieces had been incorporated into the plowzone fill.

Scrape #2 was placed adjacent to Trench #2 on the terrace surface and covered an area of 390 square ft., or 42 square m. (refer to Figure 35). Cultural materials were present here at the plowzone contact and just below, but not in the numbers found in Scrape #1. No features were designated and the materials which were recovered from primary context include a smoothed base sherd, 40 cord roughened or smoothed body sherds, four waste flakes, one piece of shatter, three pieces of unworked hematite, plus ash and charcoal samples. A cord roughened rim with tool incised lip and a defined rim/shoulder juncture (Figure 43,C) was found below the scrape but within a krotovina. Scrape #3, covering an area of 525 square ft. (56.5 square m.), was made off the eastward end of Trench #4 (refer to Figure 35). A few cultural materials, including one dentate stamped body sherd (Figure 41,C), a cord roughened body sherd with an interior punctate, three other cord roughened body sherds, and two waste flakes, were found at the plowzone contact, but no materials were found below. Scrape #4 was placed on one side of and within the elongate depression which constitutes a filled channel scar in the south central part of the site (refer to Figure 35). An area of 400 square ft. (43 square m.) was covered by the scrape, which revealed only one waste flake found together with some granite cobbles just below the plow-zone contact.

The fieldwork completed during the tests met and were carried beyond the field strategy proposed for the site. Given the prevailing field conditions, the use of a mold-board plow to loosen the plowzone for localized horizontal scraping proved a very cost and labor efficient method in helping to remove the plowzone overburden quickly. Unfortunately, the plow and tractor were not always available for use at other sites with similar field conditions which were tested under this contract.



KEY

- Portion of Scrape Not Tested Beyond Plowzone
- Feature 1, Rock-Lined Roasting Pit
- Feature 2, Conical Vessel Base
- ◊ Charcoal Samples
- Rim sherd
- Body sherd
- Multiple body sherds
- Waste flake
- Rock
- Bone fragments



— 5 Ft. —
(1.5 M.)
SCALE

Figure 36. Horizontal Plan of the Area Tested within Scrape #1 at 13BN30.
The cultural materials and features shown were found between 0.8
and 1.4 Ft. (24-43 Cm.) below the surface

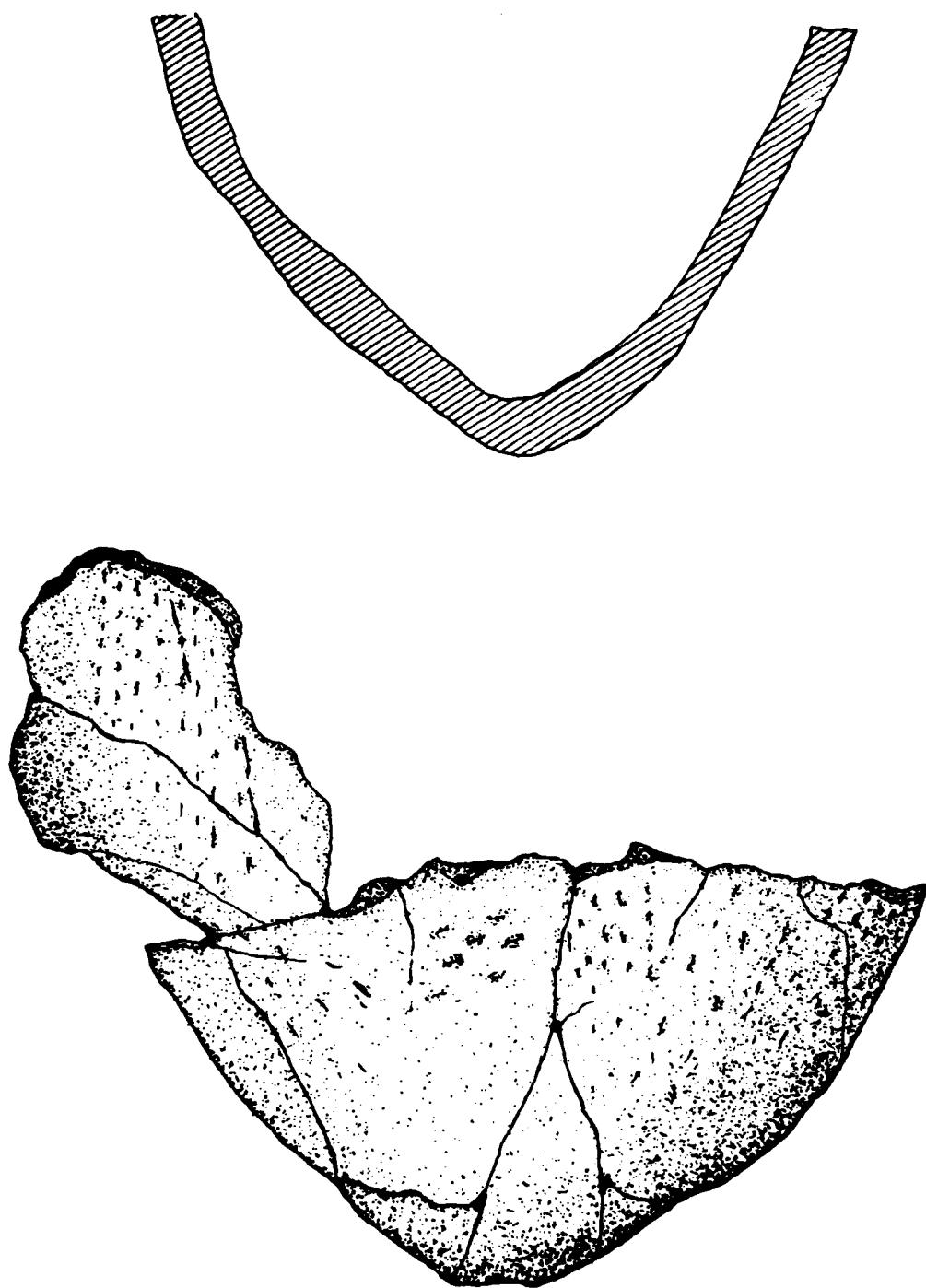
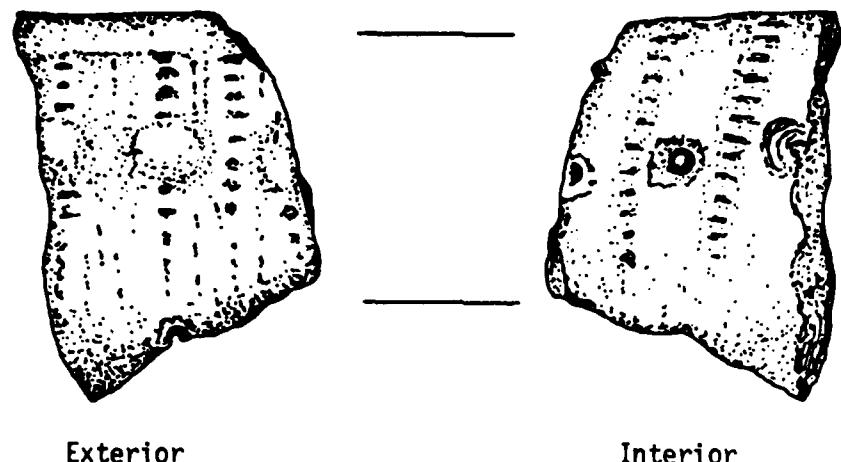


Figure 37. Reconstructed Conical Vessel Base from Feature 2 at 13BN30.
Specimen #1485, with cross-sectional view. Shown 7/10ths
actual size

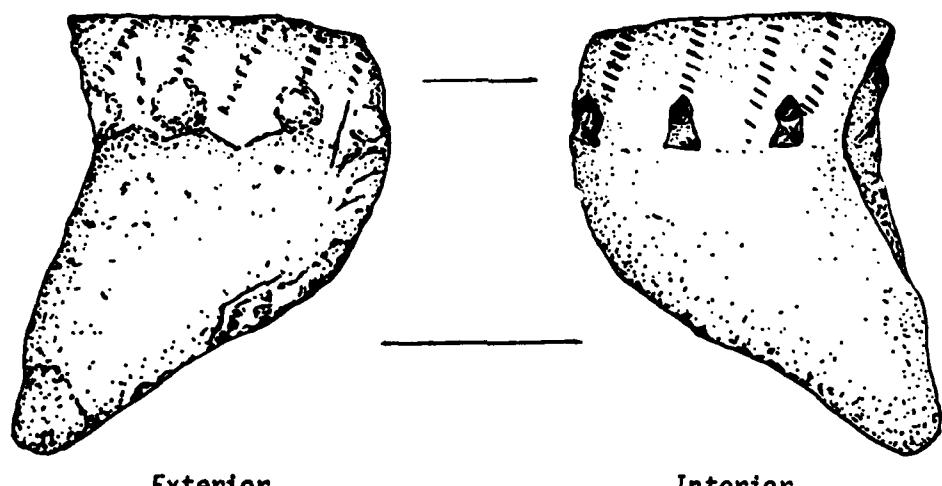
Results of Testing at Site 13BN30

The results of the tests conducted at 13BN30 are fairly conclusive in establishing that a Middle Woodland habitation area does exist in association with the Boone Mound mortuary structure. The Middle Woodland component is the only one extant at the site, although surface evidence in the form of a few single-cord impressed and thin smoothed ceramics and several small plain triangular projectile points (Figure 45,A and C-I) suggests that a more recent Late Woodland and/or post-Woodland occupation had also been present and which has now been obliterated by plowing (cf. Gradwohl and Osborn 1976: 157, 159). No Middle Woodland house structures as such were isolated in the test, but domestic features such as a rock-filled roasting pit, a conically-shaped vessel, and the surrounding scatter of broken pottery, waste flakes, and other debris would indicate the location of at least one activity area. This cultural zone is continuous from the base of the plowzone to a maximum depth of 1.4 to 1.6 ft. (46-49 cm.). The upper portion of the zone has been truncated by the plow: Features 1 and 2 were defined immediately at the plowzone contact and the upper portion of the Feature 2 vessel appeared to have been taken away by plow action. The copious amount of diagnostic Middle Woodland materials such as Havana Ware ceramics and medium-sized stemmed and notched projectile points in surface collections from the site underscores the assumption that part of the cultural deposit has been disturbed.

The bulk of the ceramic assemblage present at 13BN30 can be classified as Havana Ware or variations thereof, demonstrating an alliance with ceramic inventories from Middle Woodland Hopewell sites described for the central and lower Illinois River Valley (Griffin 1952: 101-114; McGregor 1958: 32-36) and for eastern Iowa (Logan 1976: 129-132). Observation of photos on file at the Des Moines Historical Building of the ceramics excavated from the Boone Mound in 1908 show that the same types of pottery were collected then as are now available in the artifact assemblage from the outlying habitation area. These ceramic types include Havana Cordmarked, Havana Dentate Stamped, Havana Zoned, Naples Stamped, and Spring Hollow Incised. The diagnostic characteristics present in the 13BN30 ceramics are vessels which are slightly elongate and have conically-shaped bases. The neck area is only slightly constricted and the rims are upright to slightly everted. The lip configuration is flattened and occasionally bevelled, either toward the interior or the exterior. Thickness of vessel walls can range from 5 to 10 mm. Decorative elements include bold punctations in a circumferential line well below the lip on the vessel interior; these are usually matched by corresponding bosses on the vessel exterior. Cord-wrapped stick impressions are found as interior and/or exterior lip borders (refer to Figure 38, A and B, and Figure 39, A and B) and occur in series on the exterior upper vessel body/neck region (Figure 39,A). Dentate stamping may be used in a similar manner and can vary from bold square indentations (e.g. Figure 40, A-C) to fine-toothed comb-like impressions



A



B

Figure 38. Selected Havana Cordmarked Rims from 13BN30. (A-B) Rims #630 and 2, respectively, with cord-wrapped stick impressions on interior and exterior rim surfaces and interior punctations with exterior bosses. Both are from the surface. Actual size

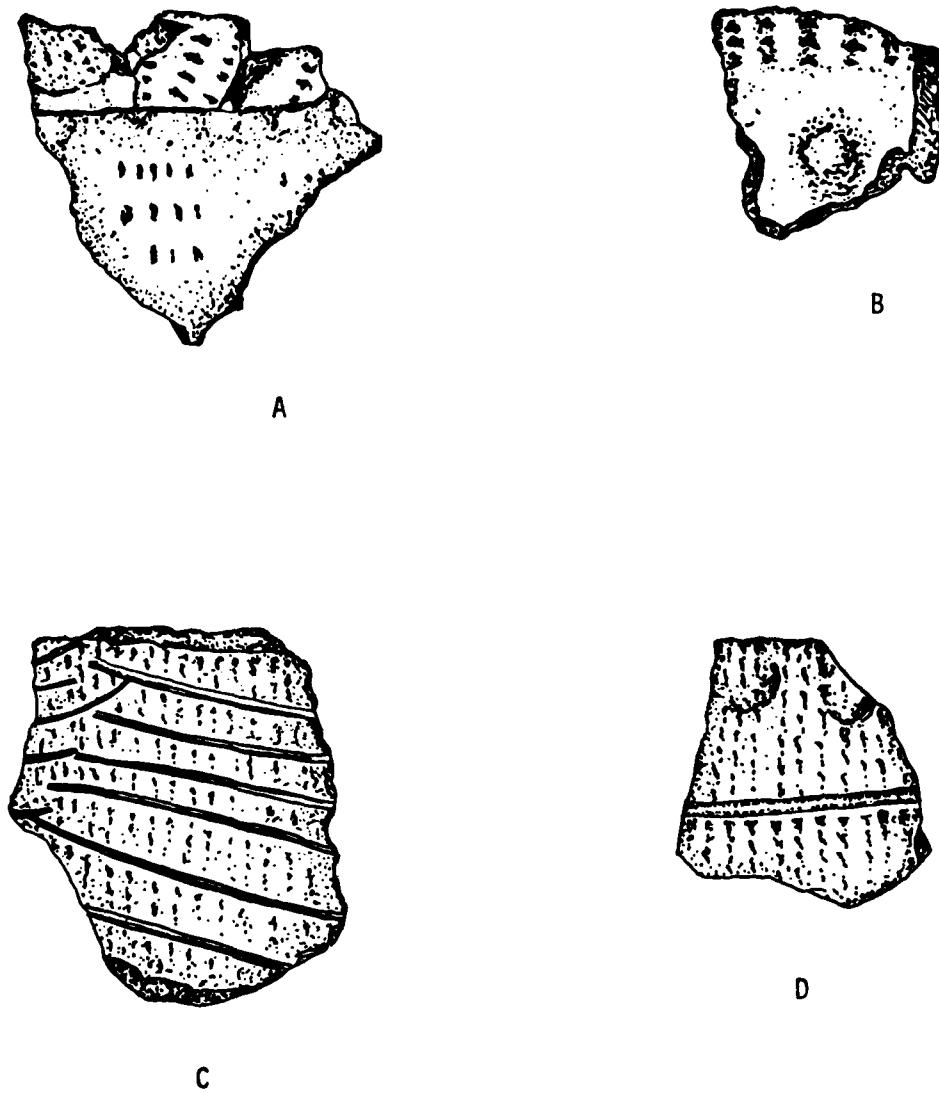


Figure 39. Selected Havana Ware Rim and Body Sherds from 13BN30. (A) Havana Plain rim #1639 with cord-wrapped stick impressions near the lip and on the rim exterior and with internal punctations and external bosses, (B) Havana Plain rim #637 with cord-wrapped stick impressions near the lip and with internal punctations and external bosses, (C) Havana Cordmarked body sherd #279 with incising over cord roughening, (D) Havana Cordmarked lower rim fragment #115 with interior punctations and exterior bosses and an incised line over cord roughening. A is from below the plowzone at 0.9-1.1 ft. (27-34 cm.) in Test Square #2; all the rest are from the surface. Actual size

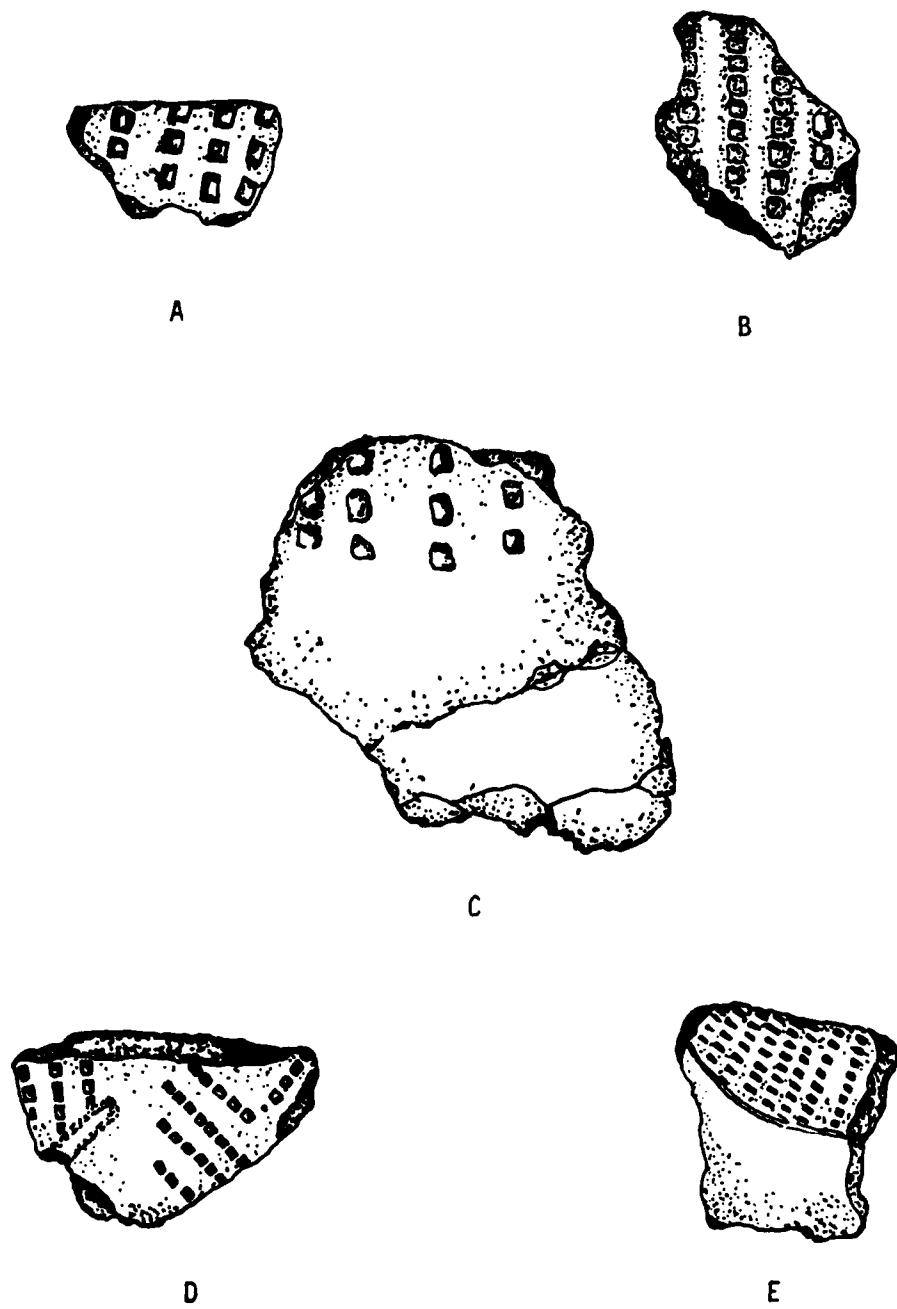


Figure 40. Selected Dentate Stamped Body Sherds from 13BN30. (A-C) Boldly dentate stamped sherds #17, 910, and 702, respectively; (D) Sherd #158 from the lower portion of vessel surface with dentate stamping in a herringbone pattern; (E) Havana Zoned sherd #157 with fine dentate stamping. A-D may be classified as Naples Dentate Stamped. All are from the surface. Actual size

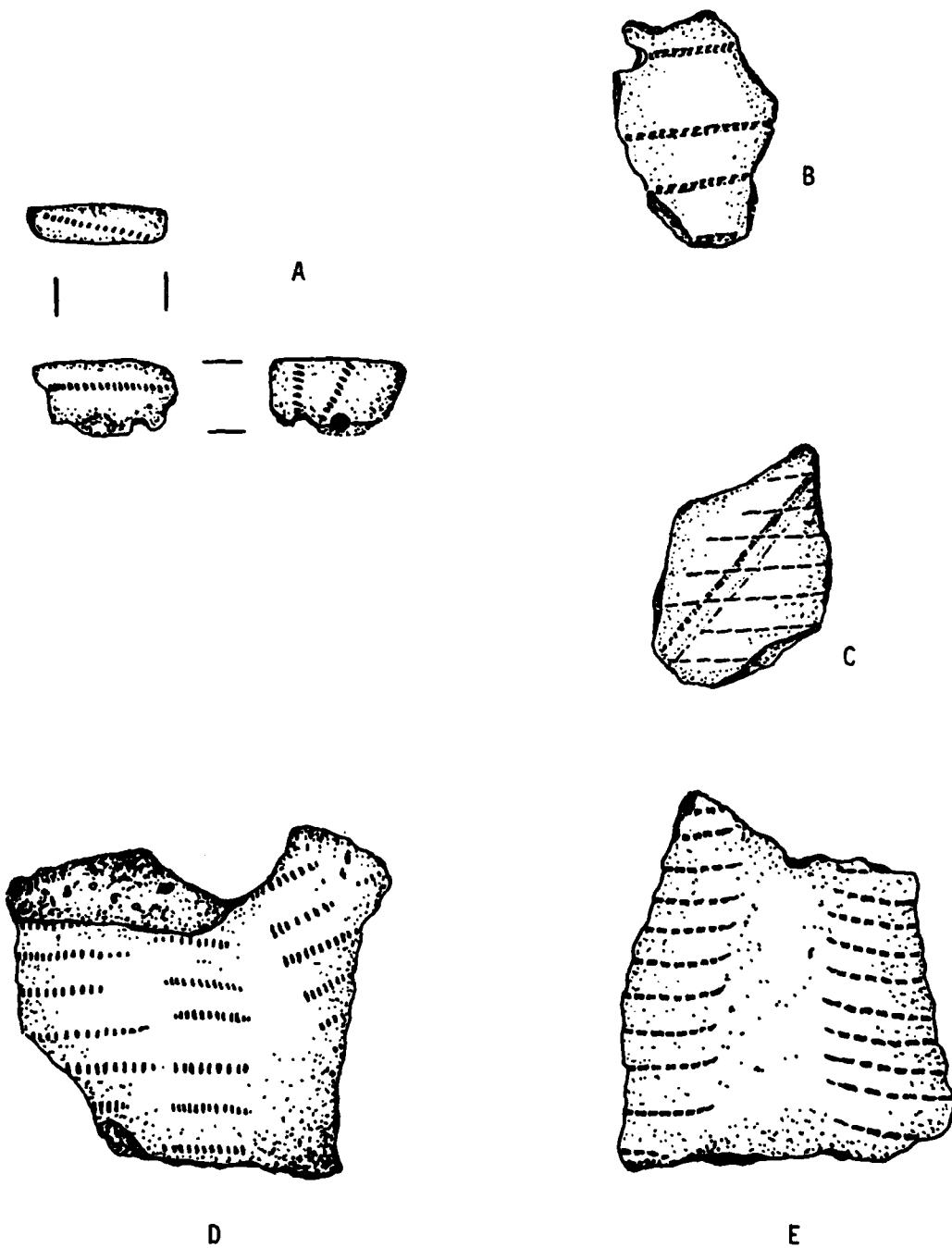


Figure 41. Selected Rim and Body Sherds with Fine Dentate Stamping from 13BN30.
 (A) Smoothed rim #78 with dentate stamping on the lip, and interior and exterior surfaces, as well as an interior punctuation and exterior boss; (B) Smoothed body sherd #159 with linear dentate stamping; (C) Smoothed and incised body sherd #186 with linear dentate stamping; (D-E) Smoothed body sherds #1575 and 1686, respectively, with series of dentate stamps. All may be classified as Havana Dentate Stamped or Naples Dentate Stamped. C is from the plowzone contact in Scrape #3 and D is from below the plowzone at 0.9 ft. (27 cm.) in Scrape #1; all the rest are from the surface. Actual size

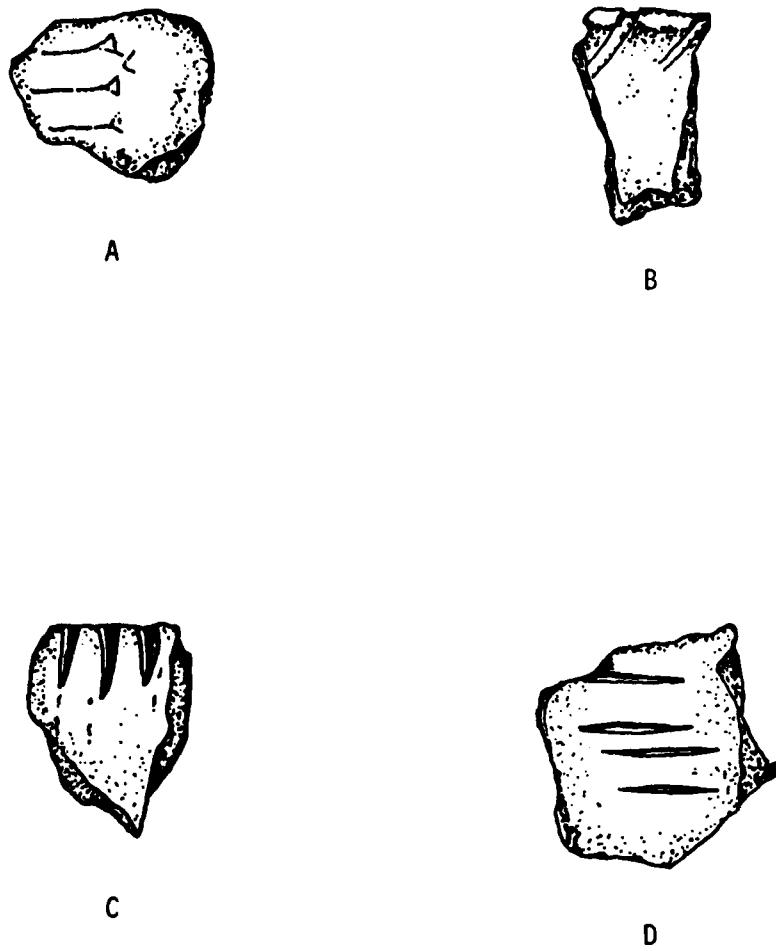


Figure 42. Selected Impressed or Incised Rim and Body Sherds from 13BN30.
(A) Smoothed body sherd #484 with stamped impressions; (B-C)
Smoothed rims #111 and 635, respectively, with tool incised
tips; (D) Smoothed body sherd #117 with tool stamping or inci-
sions. A and D may be classified as Naples Stamped, Plain
Variety. All are from the surface. Actual size

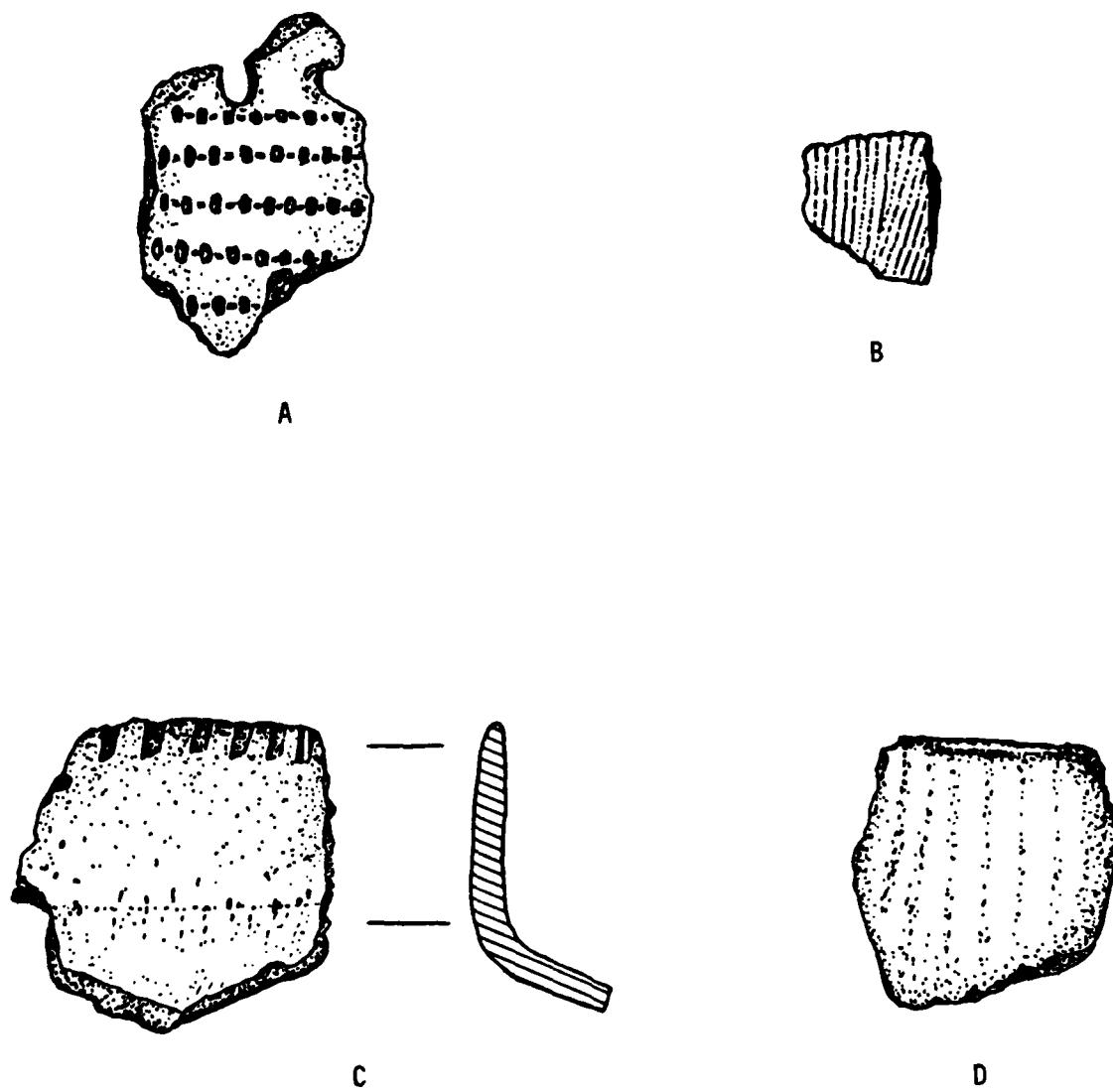


Figure 43. Selected Miscellaneous Rim and Body Sherds from 13BN30. (A) Perforated body sherd #282 with knotted cord impressions; (B) Body sherd #139 with fine combing as a surface treatment; (C) Smoothed rim #1537 with tool impressions on the lip exterior and cord roughening on the shoulder, shown with cross-section; (D) Weaver Plain rim #279 with smoothed-over cord roughening on the surface exterior and a flattened lip. C is from disturbed context below the plowzone in Scrape #2; all the rest are from the surface. Actual size

(e.g. Figure 40, D and E, and Figure 41, A-E). Less common, but present, are decorative effects with knotted cord (Figure 43, A) and rocker stamping. Tool slashes and tool impressions also occur (e.g. Figure 42, A-D), as do incised lines over cord roughening (Figure 39, C and D). A surface treatment other than smoothing or cord roughening noted on some vessels is fine-line combing (e.g. Figure 43, B).

In addition to the ceramics discussed above, the artifact classes present in the site inventory include diagnostic chipped stone tools such as the stemmed, side notched and corner notched projectile points shown here in Figure 44. None of these, however, can be classified as the large, flat, corner notched spear points of the Snyders type (cf. Logan 1976: 115; Ritzenthaler 1967: 29). Other chipped stone tool categories present include bifaces, end scrapers, gravers, retouched flakes, and utilized flakes (e.g. Figure 46). Chipped stone source and waste materials in the form of cores and preforms (Figure 47), shatter, and waste flakes; ground stone such as axes and hammerstone (Figure 48 and Figure 49); and unworked hematite are also present. Faunal remains are sparse and include a very few pieces of unidentified bone and some freshwater mussel shells.

Of the research questions posed for this region, one which cannot yet be answered on the basis of the preliminary tests at 13BN30 is the degree to which horticulture was practiced during the Middle Woodland occupation of the central Des Moines Valley. No direct evidence for cultigens was recovered. Water flotation of the fill from Feature 1, a roasting pit filled with cracked glacial cobbles, produced small grit tempered body sherds, a few waste flakes, three bits of calcined bone, burned earth, and wood charcoal, but no charred seeds, cobs, or other indication that maize, beans, or curcubits had been included in the diet. Little data for ecological reconstruction is available at this time either, although the neutral chemical condition of the terrace soil at the site (refer to Appendix C) suggests that any buried bone and shell present has had a greater chance for preservation here than at many other locations. The fact that human bone in good preservation was recovered from the excavation of the burial mound at the beginning of the century (Van Hyning 1910a: 162) adds further weight to this assumption. Upon analysis wood charcoal from the site may be used to help interpret some of the forest species present locally during the prehistoric period.

One recurrent cultural trait in Hopewellian contexts throughout the Midwest and Prairie Peninsula is the presence of obsidian, an assumed trade item from the Rocky Mountain region (Deuel 1952: 254). Obsidian flakes and obsidian tools have been reported for Illinois Hopewellian sites (McGregor 1958: 153; Wray 1952: 154) and obsidian tools are listed by Logan (1976: 191) as one of the notable traits in Hopewellian sites in the Davenport, Iowa, area. Two gray/black to black obsidian waste flakes were found on the surface at 13BN30 in the summer of 1980 and a retouched obsidian flake was recovered, again on the surface, near Test Square #1 while testing was underway. These three specimens were

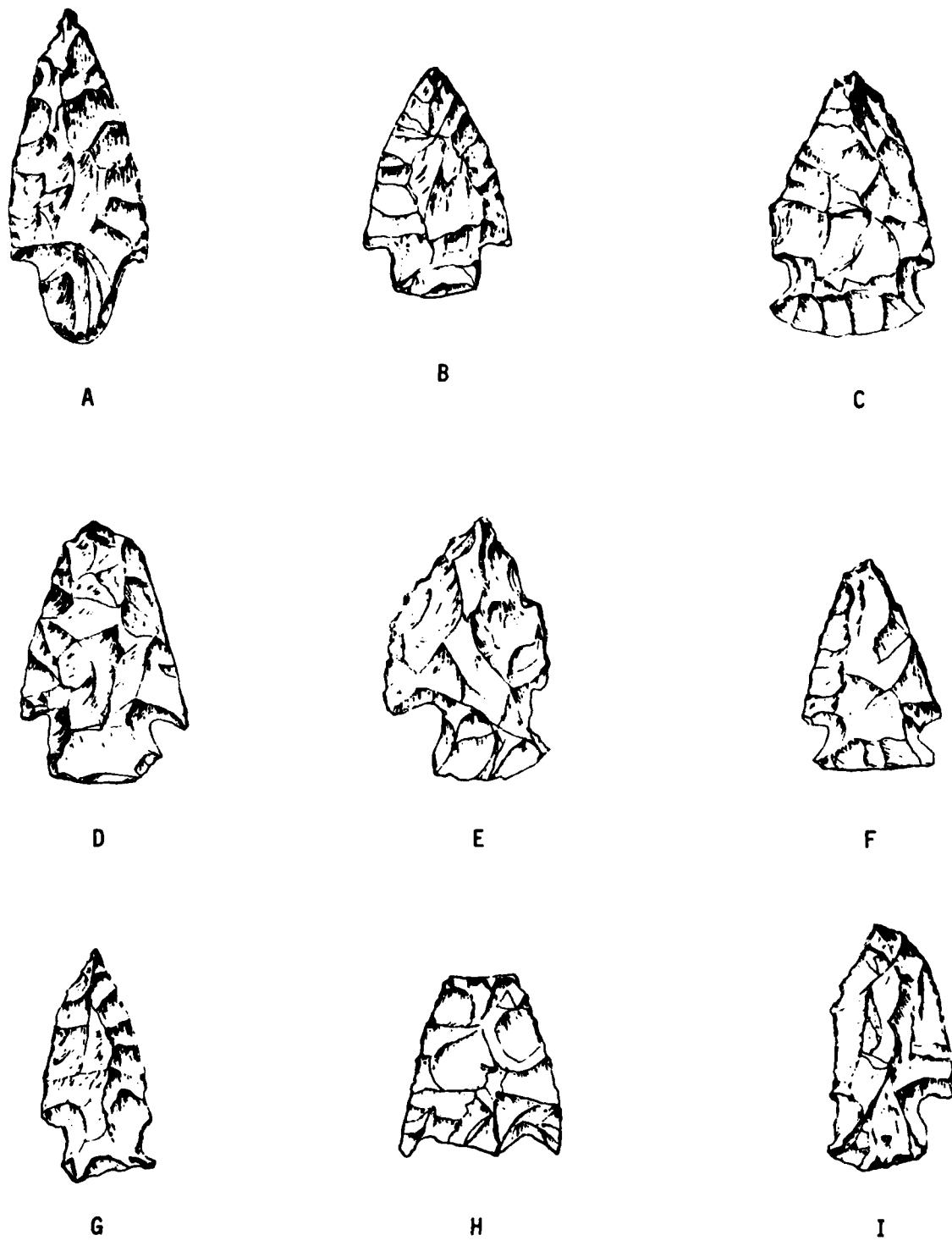


Figure 44. Selected Medium-Sized Projectile Points from 13BN30. (A) Contracting-base stemmed point #323H; (B) Parallel-base stemmed point #323I; (C) Side notched point #1307; (D-I) Corner notched points #491, 323B, 323C, 323D, 323, and 616, respectively. All are from the surface. Actual size

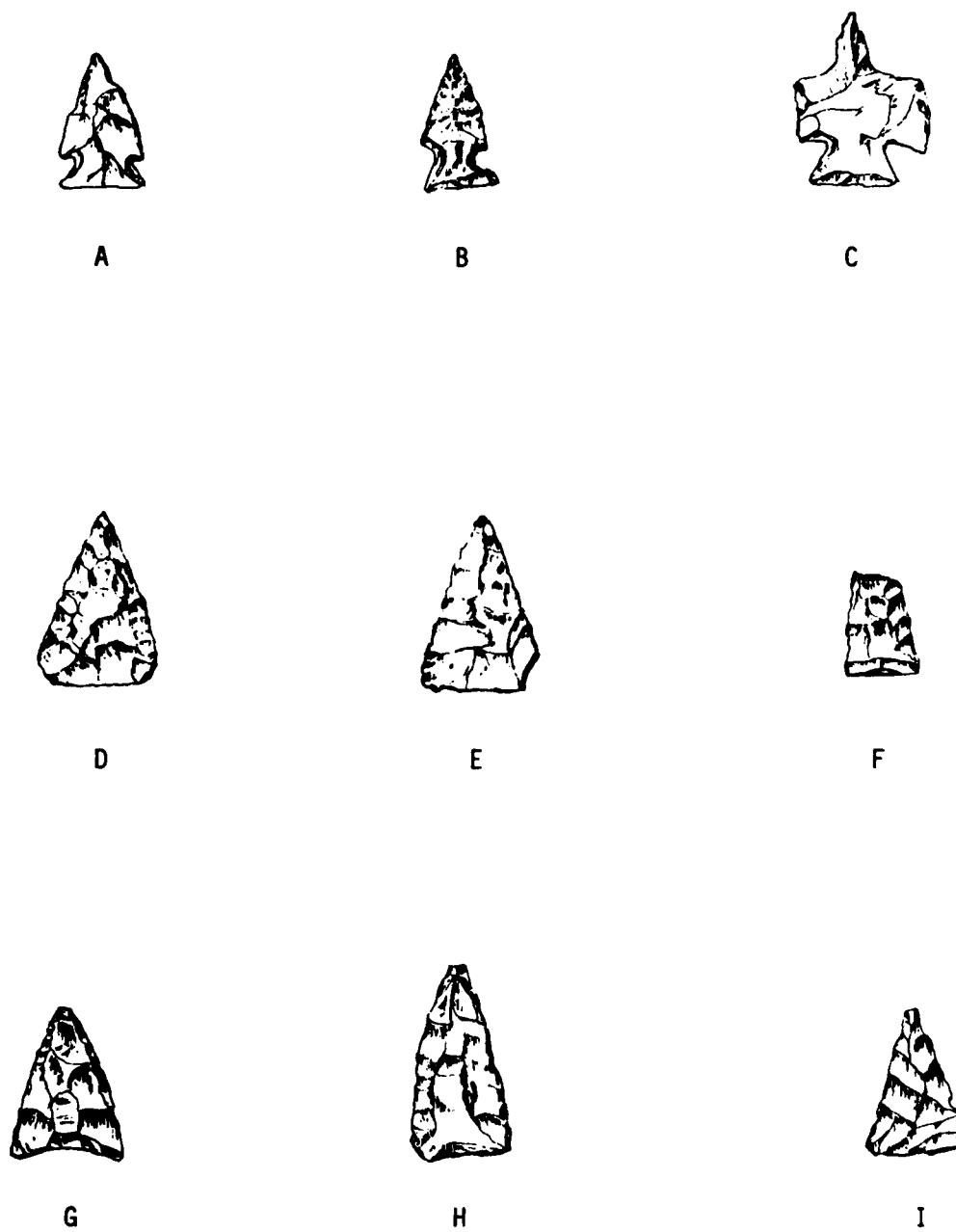


Figure 45. Selected Small Projectile Points from 13BN30. (A-B) Small corner notched points #615 and 1618, respectively; (C) Small corner notched point #3758, reworked into a drill; (D-I) Small plain triangular points #328B, 1308, 1311, 1309, 328C, and 323G, respectively. B is from the plowzone contact within Test Square #2; all the rest are from the surface. Actual size

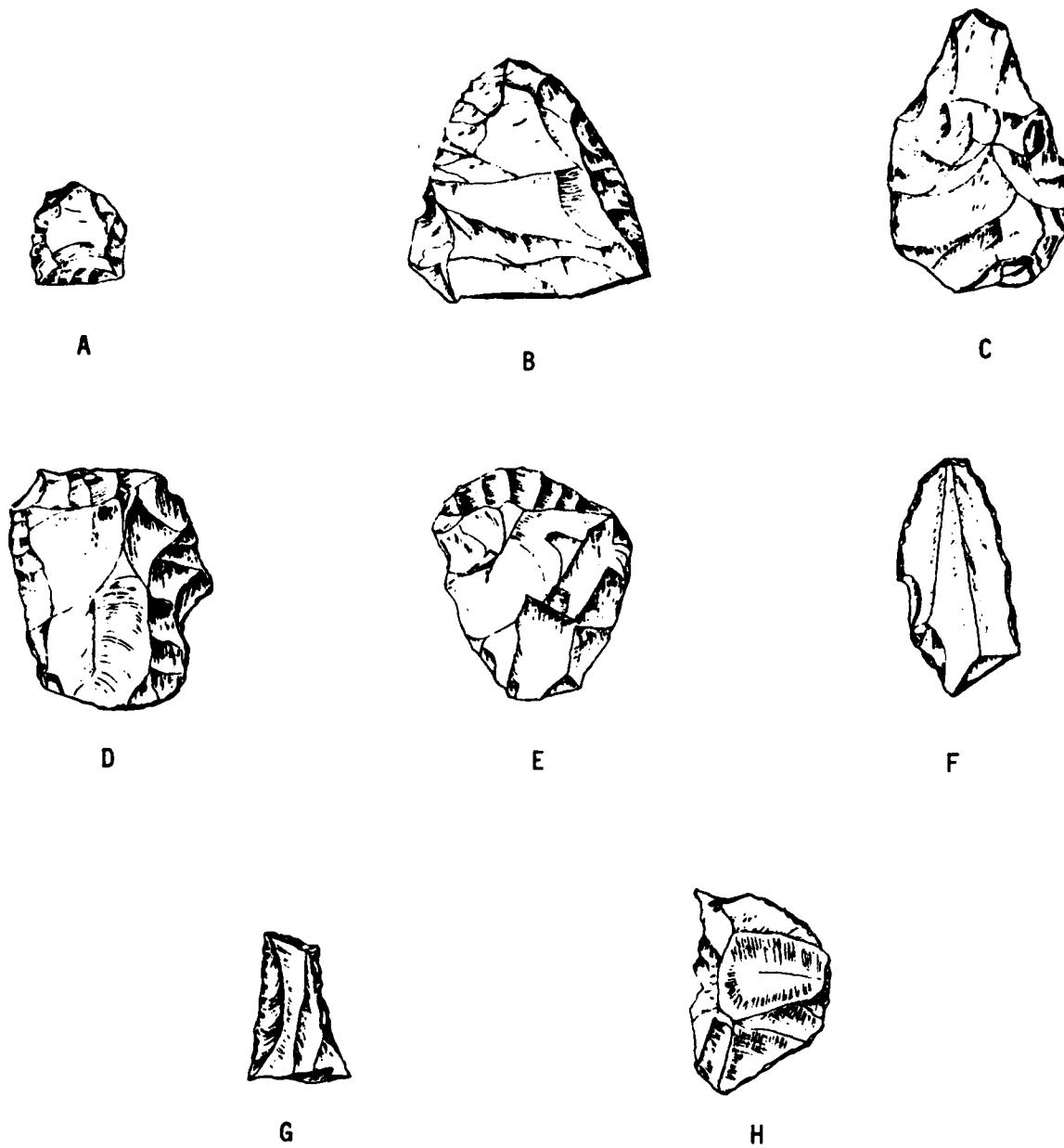


Figure 46. Selected Chipped Stone Tools from 13BN30. (A-D) Thin bifaces #1310, 365, 618, and 1570, respectively; (E) End scraper #783; (F-G) Retouched flakes #349 and 787, respectively; (H) Graver #788. D is from the plowzone in Scrape #2; all the rest are from the surface. Actual size

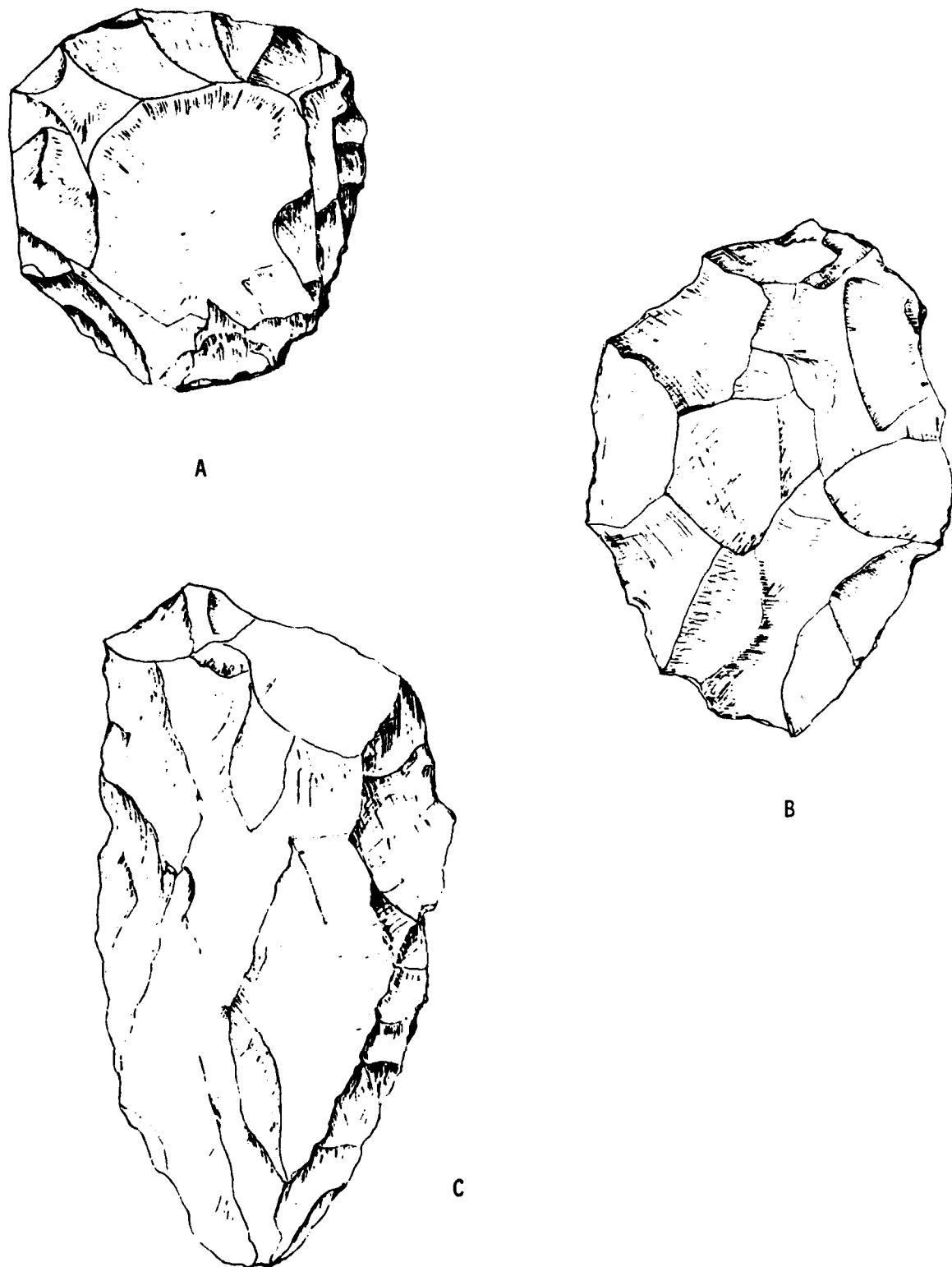


Figure 47. Selected Stone Source Materials from 13BN30. (A) Thick biface or preform #364; (B-C) Chert cores #683 and 525, respectively. All are from the surface. Actual size

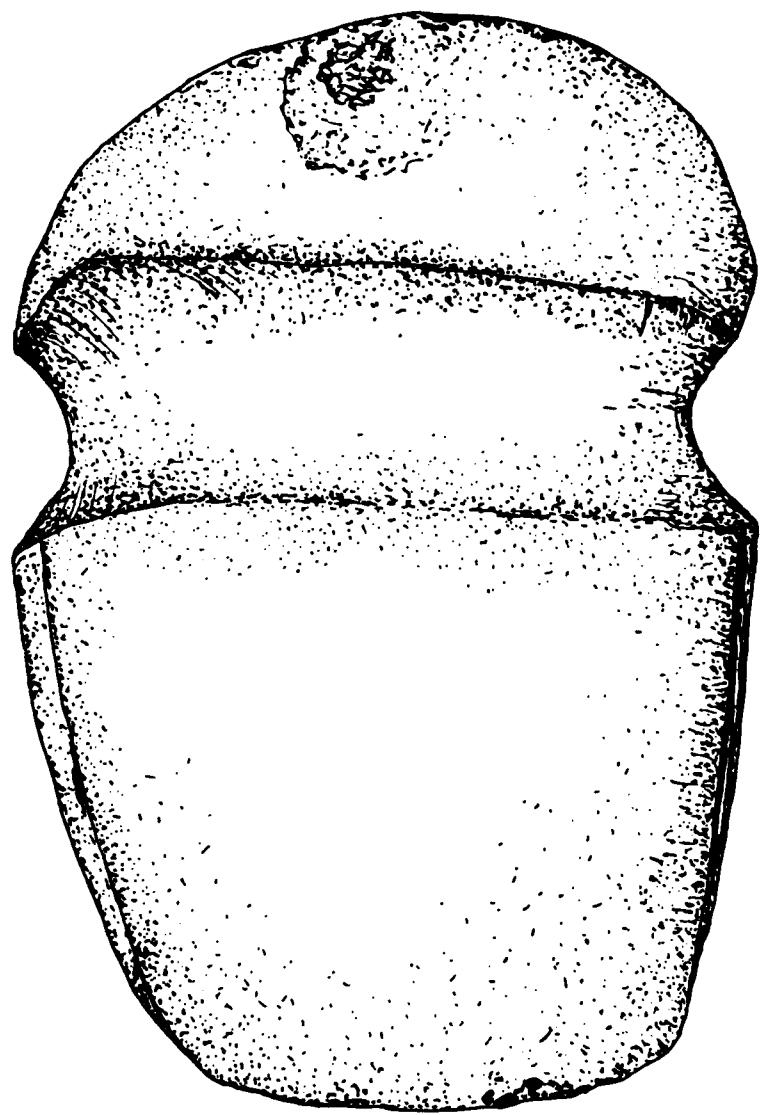
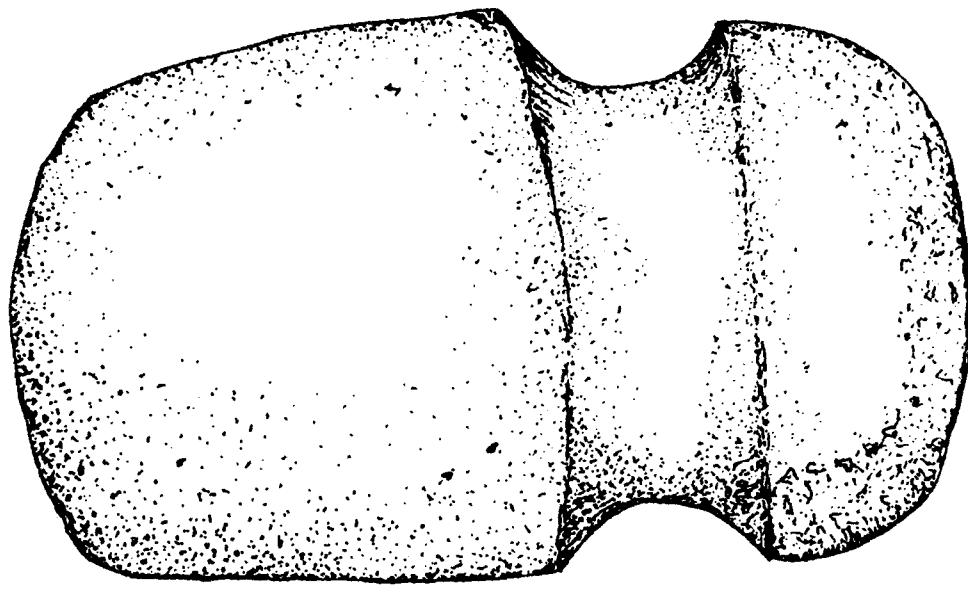
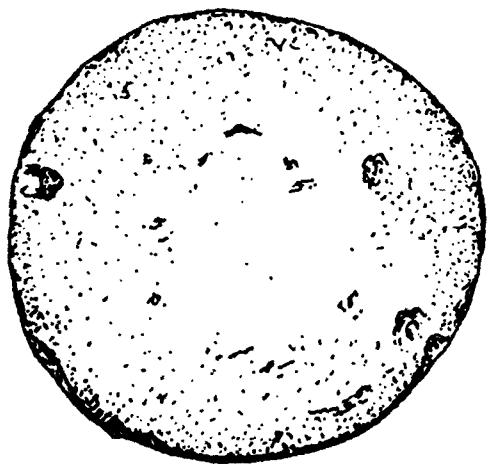


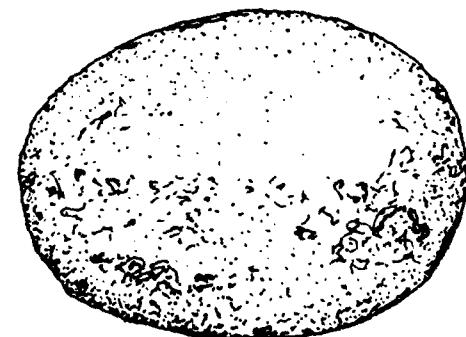
Figure 48. Fully-Grooved Axe from 13BN30. Specimen #518, from the surface. Actual size



A



Top view



Side view

B

Figure 49. Selected Ground Stone Artifacts from 13BN30. (A) Fully-Grooved Axe #519; (B) Hammerstone #520, shown with top and side views. Both are from the surface. Actual size

submitted for petrological and chemical analysis to Fred W. Nelson of A & G Analyses of Provo, Utah, and the results (see Appendix C) show that the origin of all three flakes is the Obsidian Cliff Source in Yellowstone National Park, Wyoming. These substantiated finds serve to support earlier hypotheses as to the wide extent of the interaction sphere within which Middle Woodland Hopewellian communities operated, even those well away from the more classic Hopewell centers in Ohio and central Illinois.

Illinois Hopewellian occupations are thought to have been present in the central and lower Illinois River Valley as early as 300 B.C. and probably lasted until sometime between A.D. 500-700 (Willey 1966: 251). Havana Hopewell ceramics excavated from the Young site in east central Iowa have been described by David Benn and have been given the designation of Cedar ware. The postulated occupation period represented by this ceramic assemblage is 100 B.C. to A.D. 400 (Benn and Thompson 1977: 32) based on the presence at the site of transitional and Late Woodland ceramics which are felt to first have been made in this region around A.D. 400. A sample of wood charcoal taken from the Middle Woodland cultural zone at 13BN30 at a depth of 1.1 ft. (34 cm.) within Scrape #1 was submitted for radiocarbon assay and the data obtained is 2300 ± 60 years B.P., or 350 B.C. (Beta-2810). Assuming that Hopewellian influences diffused into the central Des Moines Valley from more classic Hopewellian enclaves to the east, such a date seems to be two centuries or more too early. Radiocarbon assays of the charcoal found in two refuse pits at the Sparks site (13BN121), a Middle Woodland site within the central Des Moines Valley (reported in Gradwohl 1975: 100-121) just 2 miles (3.2 km.) south of 13BN30, produced dates of A.D. 280 ± 55 (WIS-630) and A.D. 350 ± 55 (WIS-517), which fall within the middle of the expected temporal range. It may be that 13BN30 represents one of the earliest incursions of Havana Hopewell culture into the region, transported by one or more groups moving out of the Illinois Valley and following the Des Moines River north from its mouth on the Mississippi River.

Impacts of the Saylorville Lake Project on Site 13BN30

The primary adverse impact to be realized at site 13BN30 from the operation and maintenance of Saylorville Lake will be wave attrition and intermittent inundation which will occur whenever water is allowed to rise into the upper flood control pool for flood storage. Since the cultural horizon is not deeply buried at the site, even minimal wave action is likely to completely destroy the context of the cultural information present. A less onerous impact, but one which could cause localized destruction to portions of the site, is the planned construction of a horse trail across this area linking the Polecat Hill recreation satellite with the village of Fraser (refer to Plate III, Saylorville Lake Recreation Master Plan 6B, Rock Island District, U.S. Army Corps of Engineers, 1973).

Recommendations for Further Work at Site 13BN30

The archaeological tests at 13BN30 show that the site has good potential for providing important research data in regard to Middle Woodland Hopewell culture history. Several indications, including a radiocarbon date, allude that this may have been one of the earliest occupations of this cultural complex in the region. The location of a relatively large burial mound in the midst the habitation area suggests that this settlement probably served as a religious center or point of spiritual focus for contemporaneous outlying communities. Certainly the ceramic assemblage can provide an invaluable resource for comparisons in the diffusion of a domestic art style from Havana Hopewell populations to the east as well as from the classic Hopewell centers more distant in the Ohio River Valley. As salient characteristics of Hopewellian influence, "exotic" trade items whose origins can be traced will provide a clearer understanding of the sphere of interaction within which ideas, as well as material goods, were shared.

Therefore, it is strongly recommended that further controlled archaeological investigations be undertaken at 13BN30. Primary consideration should be given to a thorough excavation of the terrace surface adjacent to the terrace escarpment south of the former position of the Boone Mound. Since the cultural zone has not been deeply buried at the site, overburden can be quickly removed and efforts can be concentrated on carefully exposing broad horizontal areas of the living surface in order to define whole structures, if present, and their associated features.

13BN38

Environmental Context of Site 13BN38

Site 13BN38 is located on a broad low riverine terrace above the left bank of the Des Moines River within Boone County, Iowa (Figure A-16). This locus is within a pronounced bend of the river. Directly across the river at this point the right bank is characterized by extremely steep wooded slopes bisected by several ravines (refer to Figure A-17). The site's boundaries are generally defined by the extent of scatter of surface cultural materials. On the east this is limited by the base of a high terrace escarpment and on the west by the base of the lower terrace margin as it meets the floodplain. The northern and southern bounds are limited to the low terrace surface and are less well defined by more discrete geomorphological features. The position of the site lies between 860 and 870 feet above mean sea level and covers an area of 15 to 20 acres (6 to 8 hectares). This terrace surface has been under cultivation throughout the historic period.

The soil upon which the site occurs has been mapped as Hanlon fine sandy loam, 0-2% slopes -- a soil derived from loamy alluvium which is moderately well drained (USDA Soil Conservation Service 1981: 27, 63 and Sheet 67). Several abandoned channel scars filled by more recent alluvium were found to cut across the low terrace surface on which the site is situated (refer to Appendix C). The native vegetation on Hanlon soils was forest or trees interspersed with some prairie species.

Previous Investigations at Site 13BN38

Site 13BN38 was designated in 1964 by the Office of the State Archaeologist on the basis of a report by a collector that he had found many points there (Ashworth and McKusick 1964: 10). However, because of thick summer vegetation neither the survey team from that office, nor personnel from the Smithsonian Institution River Basin Surveys project who checked the area in 1966, were able to locate the site (Brown 1966: 13).

On 22 April 1967 personnel from the Iowa State University Archaeological Laboratory, under contract with the National Park Service to conduct archaeological investigations within Saylorville Reservoir, visited the reported find spot. The fields had been plowed for cultivation and cultural materials were fairly abundant on the surface and indicated the potential for at least three components at the site: Middle Woodland with Hopewellian characteristics, Great Oasis, and historic Euro-American. The

Woodland remains fell generally within the northern and eastern portions of the site while the Great Oasis materials seemed to be restricted to the southwest portion nearer the terrace edge (see Figure 50).

Because site 13BN38 presented a good opportunity to investigate Middle Woodland and Great Oasis manifestations and the potential relationships between them within a single spatial domain, and because the site lay within the future flood control pool of Saylorville Lake, the decision was made to begin test excavations there in June of 1967. Since the Federal Government did not yet own the property, permission for entry and excavation was received from the presumed landowner with an agreement that Iowa State University would make reparations for any crop damages incurred. Seven 10-foot (3-meter) square test pits were established on 19 June 1967 over the major portion of the site to include both the Woodland and Great Oasis areas of concentration. However, before any of the pits could be completely excavated it was learned that the parents of the person giving permission for the archaeological work to take place were the actual owners of the property and they were adverse to the archaeologists' being there. Therefore, investigation of 13BN38 was prematurely halted, the test pits were immediately backfilled, and crop damages were paid on the areas which had been opened. The cultural information recovered as a result of these short-lived tests is limited since none of the areas opened was any deeper than 2.0 feet (61 cm.) below the surface, and cultural materials were still showing up in most of the pits when digging was halted. However, initial hypotheses that the Woodland and Great Oasis occupations were apparently separate and that the Euro-American component lay above them and was restricted to the plowzone was not refuted. Preliminary results of the curtailed testing at 13BN38 were reported to the National Park Service in 1975 (Gradwohl 1975: 197-208). Earlier, data known for the site had been summarized for the U.S. Army Corps of Engineers-Rock Island District in a roster of sites inventoried for the Saylorville project area (Gradwohl and Osborn 1973b: 35).

Surface reconnaissance was attempted at 13BN38 in June of 1969 after the property had been acquired by the Federal Government. However, the field at that time was stalk ground sown to oats and the surface was entirely masked. No visits were made to the site again until May of 1975 during the intensive survey of Reconnaissance Unit 13, part of a larger archaeological reconnaissance program within the upper Saylorville project area conducted by Iowa State University for the U.S. Army Corps of Engineers-Rock Island District. Again, surfacing conditions were poor and only an axe blank was found there. A summary of data gathered previously at the site was presented to the Corps with the recommendation that the site be excavated (Gradwohl and Osborn 1976: 60).

Archaeological monitor checks at the site between 1977 and 1980 during tree clearing activities and use of the area for "stacking and burning" operations (Plate 14) produced further surface finds including Middle Woodland rims with internal punctations and external bosses and cord-wrapped stick impressions (e.g. Figure 52, B), dentate stamping (e.g. Figure 53, A and C), incising over cord roughening, or combinations

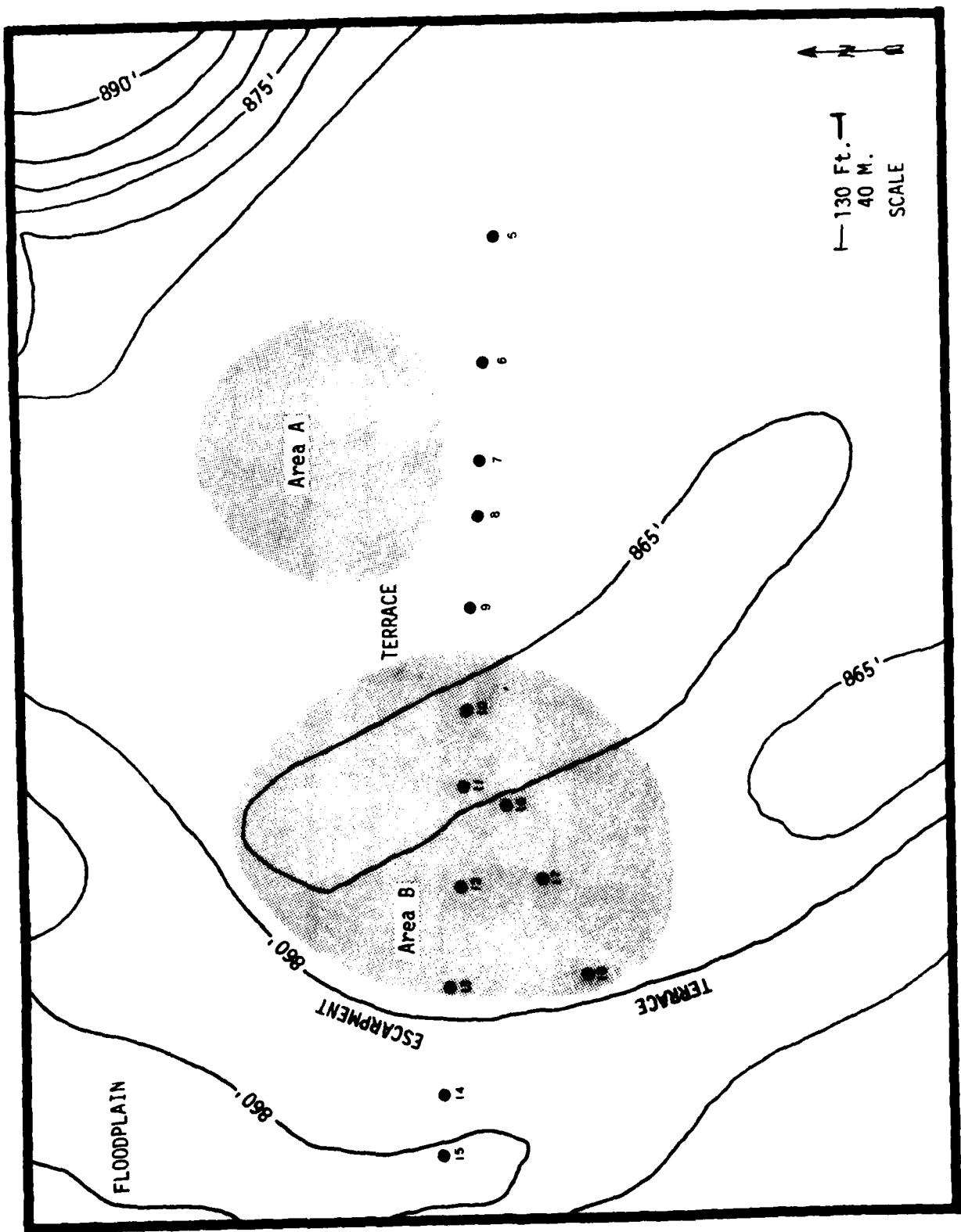


Figure 50. General Geomorphology and Placement of Soil Probing Transects at Site 13BN38. The shaded areas delimit two major collection areas from which diagnostic cultural materials were initially recovered from the surface



Plate 14. Archaeological Monitoring of Tree Clearing Activity at Site 13BN38 During 1978. Trees were cleared, stacked with bulldozers, and burned at the site. View is to the west southwest

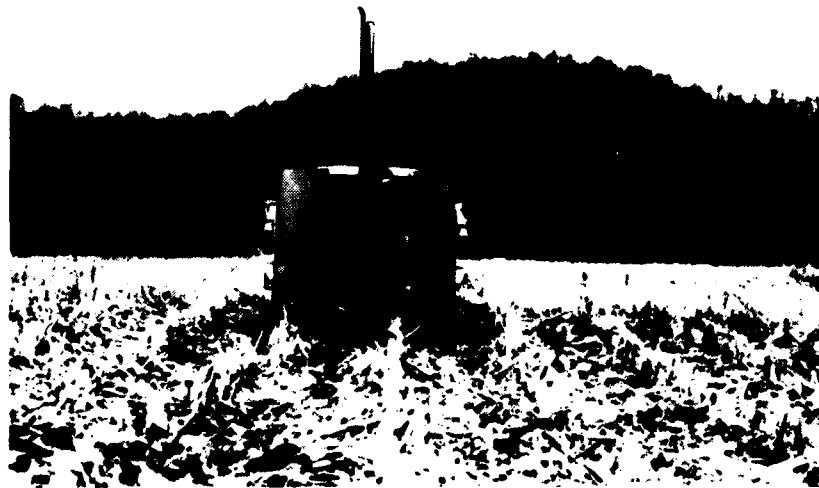


Plate 15. Soil Core Sample Being Taken by Soil Scientist Thomas Bicki with the Use of a Hydraulic Probe Truck at Site 13BN38 in November of 1980. View is to the west with the bluffs above the Des Moines River in the background

of these; grit tempered body and base sherds; Great Oasis decorated and plain ceramic fragments; a corner notched point (Figure 56, E); a side notched point (Figure 56, C); other chipped stone tool fragments (e.g. Figure 57, A); lithic debitage; a pecked and polished diorite celt (Figure 58); bone; and historic ironstone, stoneware, glass, and metal. All of these items were added to the site's inventory.

Statement of Research Objectives for Site 13BN38

Based on the distribution of diagnostic surface artifacts and the results of brief, shallow archaeological tests which were prematurely halted at the site in 1967, it appears that 13BN38 might provide important data in regard to both a Middle Woodland settlement with Hopewellian affinities and a Great Oasis village, assumed to be separated temporarily by several hundred years but utilizing the same spatial, and possibly ecological, domains. One objective of the present project is to determine if one or both of these cultural components remains at the site in a primary context and to ascertain the degree to which these components overlap in horizontal extent. It is hoped that a sufficient amount of pertinent data from each component may be collected such that comparisons may then be made with other Middle Woodland Hopewell and Great Oasis sites recorded for the central Des Moines Valley as called for under at least two of the questions posed specifically for the Saylorville region. Ultimately the objective would be for the cultural reconstructions formulated from these collective data to be extended to include similar cultural manifestations beyond the local region.

Following a third research question regarding the recording of archaeological evidence for prehistoric horticulture within the Saylorville area, of particular interest would be the location of cultivated plant remains, in addition to other botanical specimens, in either the Middle Woodland and/or the Great Oasis components. While maize, sunflower, and curcubits (squash or gourd) are reported in Great Oasis context in the central Des Moines Valley (Gradwohl 1974: 97, Mead 1981), no evidence for such horticultural products is known for the Middle Woodland period here. Another objective addressed by a fourth research question is to collect paleobotanical remains which might be used to determine the prevailing environmental conditions at the periods during which the site was inhabited. Finally, although the historic Euro-American occupation of this portion of the valley is not specifically addressed by the set of research questions, any material culture data and contextual information which would shed light on the late-nineteenth and early-twentieth century settlement of this portion of the valley would, of course, be collected and recorded.

Statement of Methodology at Site 13BN38

Archaeological testing of 13BN38 under this contract was instituted on 12 November 1980 with the procuring of fourteen 2-inch (5 cm.) diameter solid-core soil probes with the use of a hydraulic soil probing rig mounted

on a truck (Plate 15). Eleven probes were taken along an east/west transect which had been laid out with a transit and stadia and were spaced apart at distances between 70-125 ft., or 23-41 m. (Figure 50). Four additional coring loci had been surveyed and flagged for probing; however, it was decided by the soil scientist that these probes were not needed, so the designation of the probes taken began with #5. A second, shorter transect was branched from the first and included three probes, #16-18 (refer to Figure 50). Cores were taken to a maximum depth of at least 5 ft. (153 cm.), at which point the sandy soil was so unconsolidated that it would not stay in the coring tube.

This initial approach to the testing departed from the originally-proposed plan of two intersecting transects with more widely-spaced probes. The plan which was substituted on the advice of the soil scientist more logically sampled the axis of the geomorphological feature on which the site is found. The results of probing showed that the terrace is composed of a uniform sandy loam throughout its extent, the only variation in soil being a swale east of the terrace escarpment within which organic alluvium had accumulated on top of the sandy loam. The C soil horizon was encountered at depths between 4.7 and 5.3 ft. (143-162 cm.). The potential for any deeply-buried cultural deposits at the site is absent.

The next phases of testing at the site took place in May of 1981. A horizontal scrape to the base of the plowzone was made by machine within Area B, that portion of the site from which most of the Great Oasis materials had been collected from the surface between 1967 and 1980 (refer to Figure 50 and Figure 51). This scrape covered an area of 900 square ft. (96 square m.), which was then cleaned off at the plowzone contact by hand shovel skimming. No cultural materials were found in the scrape and no cultural features were defined in horizontal profile, even though a cultural deposit with Great Oasis ceramics had been uncovered immediately below the plowzone in the three 10-ft. (3-m.) square test squares dug nearby in 1967 (refer to Figure 51). Since probes had been placed through this scrape area to the terrace escarpment, the decision was made not to expend more effort on extending a trench over that distance.

In sub-leasing the land on which 13BN38 is located for planting in 1981, the Iowa Conservation Commission had stipulated that "no-till" farming practices would be utilized. Therefore, the site remained under heavy stalk cover during the 1981 growing season, and the machine scrape through this material was a difficult and time-consuming endeavor. To circumvent this problem (in the absence of a tractor and mold-board plow) a decision was made to substitute several short backhoe trenches in lieu of machine scraping within Area A, that portion of the site from which much of the Middle Woodland ceramics had been surface collected, and in other portions of the site. Four trenches had already been dug for vertical profile and soils information -- two within Area A and two within Area B, including one through the major terrace escarpment (see Figure 51).

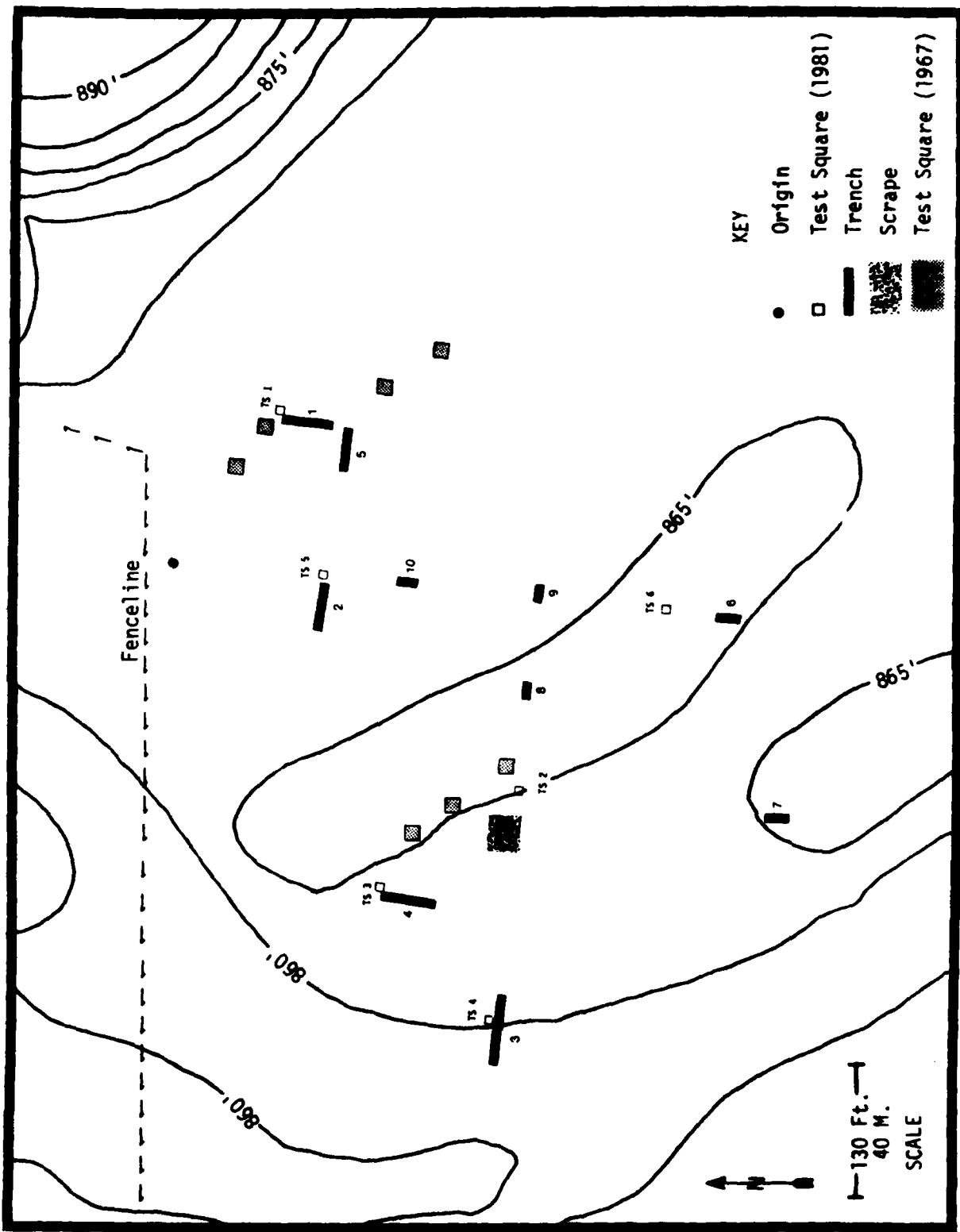


Figure 51. Placement of Trenches, the Horizontal Scrape, and Test Squares at Site 13BN38. The stippled areas indicate the positions of test squares begun (but not allowed to be completed) in 1967

Trench #1 was 50 ft. (16 m.) and Trench #2 was 40 ft. (13 m.) in length. Both revealed typical terrace soil profiles with some sandy accumulations derived from upland and sideslope run-off (refer to Appendix C). The only material of note found within these trench walls was three pieces of unidentified bone at a depth of 1.0 ft. (30 cm.) and six more bone fragments at a depth of 2.5 ft. (76 cm.), all within Trench #1. The top of the C soil horizon occurred in both between 4.7 and 5.0 ft. (143-152 cm.). Trench #3, which was 65 ft. (21 m.) in length and was oriented perpendicularly through the terrace escarpment, exposed an organic alluvial A soil horizon to a depth of 3.2 ft. (97 cm.); the C horizon here began at a depth of 5.0 ft. (152 cm.) below the surface. Scattered concentrations of burned earth and charcoal were noted at the plowzone contact within the trench profile, so a hand-dug test square was placed adjacent to the trench near one of these concentrations to expose the material in horizontal profile. This showed that the burned earth and charcoal deposit was widespread and irregular -- unquestionably the result of the "stacking and burning" which had taken place at the site in 1978 during tree clearing activities in this portion of the lake project (see Plate 13). Plowing had since covered over the surface indications of this operation, leaving pockets of disturbance just below the reach of the plow. No cultural materials were to be seen in the trench walls, which had been cleaned by hand trowelling to enhance the definition of any cultural deposits which might be present. Trench #4 was placed within the northern portion of Area B and was oriented generally north/south for a length of 55 ft. (18 m.). The soil profile here was essentially the same as that recorded for Trenches #1 and 2, and no cultural materials were exposed.

The shorter (16-35 ft., or 5-11 m.) trenches included two which were spaced out within Area A and four more which were placed in the central and southern portions of the field. The latter served as a control since little surface material had been collected previously from those areas. All but Trenches #9 and 10 revealed terrace soil profiles similar to those already described for the longer trenches. A mixed soil deposit covering a buried soil surface at 1.8 ft. (55 cm.) below the present ground surface was exposed in Trenches #9 and 10. Indications are that this area had once been boggy and probably represents a swale across the site which was later filled in by transported material. Prehistoric cultural occupation is not probable in this specific location because of the wet condition of the soil. The only one of these trenches to produce cultural material was Trench #5, within the Area A collection area. Here one grit tempered smoothed body sherd was found in the backdirt removed by the backhoe, two sherds with incising over cord roughening were recovered from the plowzone, and another smoothed sherd and a sample of wood charcoal were taken from a depth of 1.0-1.1 ft. (30-34 cm.) within undisturbed context.

Further controls for tighter cluster sampling results were implemented by digging six hand-dug test squares within the site area and sifting the fill through 1/2-inch mesh hardware cloth screens. Each of these squares was 5 ft. (1.5 m.) square and taken to a depth of 1.6 ft. (49 cm.).

Test Square #1 was located adjacent to Trench #1 and Test Square #5 was placed off one end of Trench #2, both within Area A (refer to Figure 50 and Figure 51). The former produced grit tempered sherds, a stemmed point segment (Figure 56, B), waste flakes, and a piece of calcined bone from the plowzone, and cultural material was found as a continuous deposit in primary context from the plowzone contact to 1.3 ft. (40 cm.). These materials include a Havana Ware rim (Figure 52, A); two small grit tempered rim fragments; six cord roughened body sherds; one retouched flake; one utilized flake; one waste flake; and eight unidentified bone fragments, three of which are calcined. No cultural material was recovered from Test Square #5.

Test Squares #2, 3, and 4 were located within Area B. Test Square #2 was placed to the east of the scrape, Test Square #3 was located near the end of Trench #4, and Test Square #4 was established adjacent to Trench #3 on the terrace escarpment (see Figure 51). One waste flake only was recovered from each of Test Squares #2 and 3 within the plowzone; no cultural remains could be located below that zone in primary context. Test Square #4 was opened to explore the burned earth and charcoal showing at the plowzone contact in the wall of Trench #3. These deposits proved to be recent disturbance from tree clearing and burning associated with the construction of Saylorville Lake. Nothing of prehistoric cultural significance was isolated within this square. The final test square, #6, was located in the south central portion of the field between Trenches #9 and 6 (refer to Figure 51). Here one smoothed grit tempered body sherd and some sandstone fragments were found within the plowzone, but again no cultural materials were derived from primary deposits.

As noted above, the field strategy as originally proposed was altered to some extent as the fieldwork progressed to cut out some procedures and introduce others for time and cost effectiveness. Flexibility was needed because of the prevailing field conditions (the area had not been plowed since the last harvest) and because the farmer lessee was anxious for the testing to be concluded before his crop went in.

Results of Testing at Site 13BN38

Archaeological testing conducted under this contract has demonstrated that at least the lower portion of a Middle Woodland cultural zone representing a Havana-Hopewell domestic settlement survives at 13BN38. This cultural deposit is shallow and extends no deeper than 2.0 ft. (61 cm.) below the present ground surface. Its horizontal extent is thought to be limited to the back portion of the terrace feature nearest the base of the high terrace slope. Past boggy conditions, noted in the soil profiles of Trenches #9 and 10, probably served to discourage settlement any further to the west toward the river during this period. Generally this area corresponds to that portion of the site, Area A (refer to Figure 50), from which most of the diagnostic Middle Woodland materials had been collected from the surface. Therefore, it is evident that the upper portion of this cultural horizon was truncated by agricultural use of the land over the last century.

PREHISTORIC ARTIFACTS

Ceramics

Great Oasis rim/body segments (including G.O. Incised & G.O. Plain rims, & parallel trailedd shoulder sherds)
Decorated Woodland rim/body segments (primarily Havana Ware)
Undecorated or cord marked grit tempered vessel fragments (including both thin hard sherds as well as the thicker heavily grit tempered sherds)

Total	Materials Collected Prior To and Between Tests	Materials Collected During the Test in 1967	Materials Collected During the Test in 1981	Surface (cultivated field)	Ap or Plowzone	A12/A3 soil horizons 0.85-2.0 ft. (26-61 cm.) in test units in Areas A & B in 1967	A12/A3 soil horizons 0.85-2.0 ft. (26-61 cm.) in test units in Areas A & B in 1981
44	11	30	3	13	20	10	1
38	20	12	6	22	15	1	-
671	330	281	60	358	244	61	8

Chipped Stone

Stemmed projectile points
Medium-sized side and corner notched points
Small plain triangular projectile points
End scraper
Drill
Thin bifaces (including some point segments)
Thick bifaces
Retouched flake/scrapers
Retouched flakes
Utilized flakes

2	-	1	1	-	2	-	-
4	3	1	-	3	1	-	-
4	3	1	-	3	1	-	-
1	1	-	-	1	-	-	-
1	-	1	-	-	1	-	-
11	8	-	3	11	-	-	-
4	3	-	1	4	-	-	-
15	11	4	-	11	2	2	-
4	2	-	2	3	-	-	1
19	16	1	2	17	-	2	-

Chipped Stone Source & Waste Material

Core fragments
Shatter chunks
Waste flakes

3	3	-	-	3	-	-	-
4	4	-	-	4	-	-	-
257	185	53	19	197	47	13	-

Ground Stone

Elongate celt & axe blank
Pecked & ground stone fragments
Worked hematite

2	2	-	-	2	-	-	-
5	4	1	-	4	1	-	-
7	7	-	-	7	-	-	-

Unworked Stone Source Material

Hematite and limonite

25	13	12	-	13	12	-	-
----	----	----	---	----	----	---	---

Worked Bone

Smoothed deer antler tine

1	1	-	-	1	-	-	-
---	---	---	---	---	---	---	---

HISTORIC ARTIFACTS

Ceramics

Ironstone vessel fragments
Stoneware vessel fragments
Salt glazed brick

14	13	1	-	13	1	-	-
21	21	-	-	21	-	-	-
2	2	-	-	2	-	-	-

Glass

Clear, amber, & milkglass container fragments
Window glass fragments

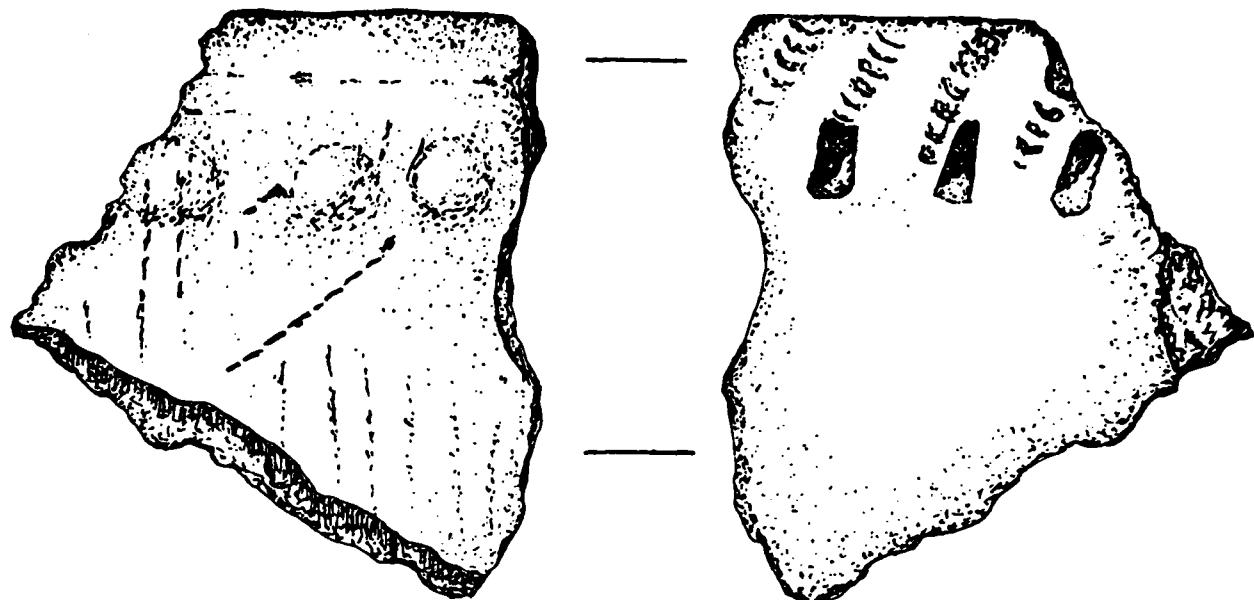
4	4	-	-	4	-	-	-
3	3	-	-	3	-	-	-

Metal

Miscellaneous iron fragments (including a halberd head, flat headed wire, nine wire,

Medium-sized side and corner notched points	4	3	1	-	3	1	-	-
Small plain triangular projectile points	4	3	1	-	3	1	-	-
End scraper	1	1	-	-	1	-	-	-
Drill	1	-	1	-	-	1	-	-
Thin bifaces (including some point segments)	11	8	-	3	11	-	-	-
Thick bifaces	4	3	-	1	4	-	-	-
Retouched flake/scrapers	15	11	4	-	11	2	2	-
Retouched flakes	4	2	-	2	3	-	-	1
Utilized flakes	19	16	1	2	17	-	2	-
<u>Chipped Stone Source & Waste Material</u>								
Core fragments	3	3	-	-	3	-	-	-
Shatter chunks	4	4	-	-	4	-	-	-
Waste flakes	257	185	53	19	197	47	13	-
<u>Ground Stone</u>								
Elongate celt & axe blank	2	2	-	-	2	-	-	-
Pecked & ground stone fragments	5	4	1	-	4	1	-	-
Worked hematite	7	7	-	-	7	-	-	-
<u>Unworked Stone Source Material</u>								
Hematite and limonite	25	13	12	-	13	12	-	-
<u>Worked Bone</u>								
Smoothed deer antler tine	1	1	-	-	1	-	-	-
HISTORIC ARTIFACTS								
<u>Ceramics</u>								
Ironstone vessel fragments	14	13	1	-	13	1	-	-
Stoneware vessel fragments	21	21	-	-	21	-	-	-
Salt glazed brick	2	2	-	-	2	-	-	-
<u>Glass</u>								
Clear, amber, & milkglass container fragments	4	4	-	-	4	-	-	-
Window glass fragments	3	3	-	-	3	-	-	-
<u>Metal</u>								
Miscellaneous iron fragments (including a baling hook, flat barbed wire, pipe, wire nail, and sheet iron)	8	6	1	1	7	1	-	-
ECOLOGICAL MATERIALS								
Mammal bones & teeth (including deer and rodent)	14	8	6	-	8	2	4	-
Calcined bone fragments	46	34	8	4	34	6	5	1
Unidentifiable bone fragments	44	15	15	14	15	10	6	13
Freshwater mussel shell fragments	6	6	-	-	6	-	-	-
Wood charcoal samples	3	-	2	1	-	2	-	1
	1287	739	431	117	790	368	104	25

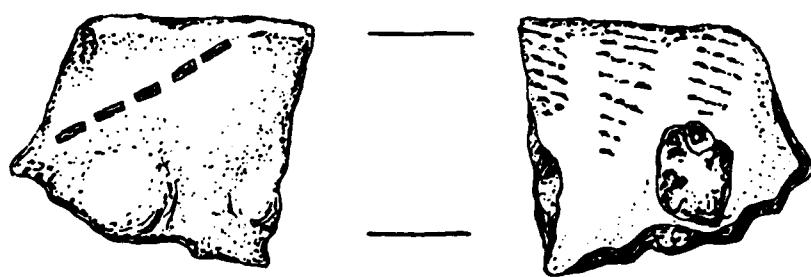
Table 7. Tabular Summary of Archaeological Materials Recovered from Site 13BN38. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.



Exterior

Interior

A



Exterior

Interior

B

Figure 52. Havana Ware Rims from 13BN38. (A) Havana Cordmarked rim #516, with interior cord-wrapped stick impressions and punctations and exterior bosses; (B) Naples Dentate Stamped rim #418, with interior cord-wrapped stick impressions and punctations and exterior dentate stamping and bosses. The former is from Test Square #1 at a depth of 1.0 ft. (30 cm.); the latter is from the surface of Area A. Actual size

The present preservational status of the Great Oasis component, also probably representing a domestic encampment, is less clear. In 1967 the brief tests at 13BN38 showed that part of a cultural zone containing diagnostic Great Oasis ceramics was still intact immediately below the plowzone to a depth of 1.75 ft. (53 cm.) below the surface in the small portion of Area B investigated (Gradwohl 1975: 201). Testing under the present contract also resulted in the location of Great Oasis ceramics, but all were derived from the present ground surface within Area B (refer to Figure 50) and no trace remained of cultural materials of any kind in primary context below the plowzone. Apparently the combined forces of earthmoving by power machinery used during tree clearing, continuous plowing of the field for row crops over the last thirteen years, and erosion have all worked to destroy this shallowly-buried cultural horizon. It is possible that deep storage pits or other such cultural features may yet survive below the plowzone, but the major deposit of Great Oasis cultural remains appears to have been obliterated on the terrace surface nearest the Des Moines River -- the area within which this component was apparently primarily confined.

Since cultural features were not isolated in either the Middle Woodland or the Great Oasis components during these tests, the chances for finding horticultural or ecological indicators was greatly reduced and only a few undistinguished bone fragments were collected in these tests. However, the potential for finding such materials remains high with further exploration of the Middle Woodland component, and should any Great Oasis features be found below the plowzone, these too may yet provide such key information. Teeth identified as those of white-tailed deer were recovered within Great Oasis context in the short-lived tests in 1967 (Gradwohl 1975: 208).

The material data classes present for the Middle Woodland component include ceramics; chipped stone implements in the form of stemmed and notched projectile points (e.g. Figure 56, A-F) compatible in configuration with those found elsewhere in the Midwest in Late Archaic through Middle Woodland context (cf. Ritzenthaler 1967: 25, 27, 29), bifaces and/or performers (e.g. Figure 57, B and C), end scrapers (e.g. Figure 57, A), retouched flakes/scrapers, retouched flakes, and utilized flakes; chipped stone source and waste material such as hematite; and a few fragments of bone. The decorated pottery is typologically analogous to Havana Ware groups described by Griffin (1952: 101-114), McGregor (1958: 32-36), and others for the central and lower Illinois River Valley and by Logan (1976: 129-132) for eastern Iowa. These ceramic types include Havana Cordmarked, Naples Dentate Stamped, and probably Spring Hollow Incised ceramics (e.g. Figure 52 and Figure 53). As such these fit well with diagnostic ceramic inventories from other Middle Woodland components tested under this contract, including sites 13BN27, 13BN30, 13BN123, and 13BN182. On this basis it may be hypothesized that all these sites were either coterminously occupied by sub-units of the same cultural

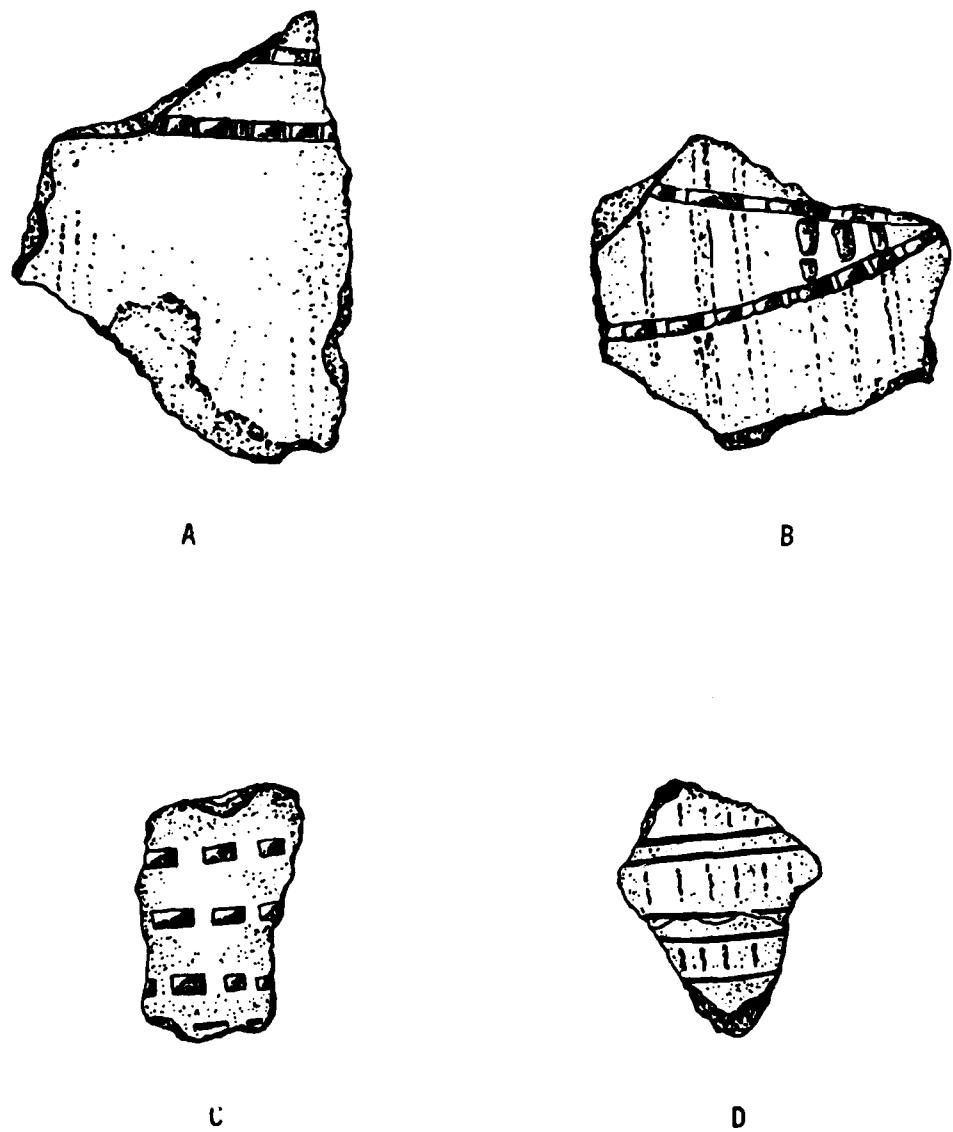


Figure 53. Selected Havana Ware Body Sherds from 13BN38. (A-C) Naples Dentate Stamped body sherds #337, 184, and 419, respectively; (D) Body sherd #533/534, with narrow incised lines over cord roughening. A and C are from the surface, B is from the plowzone of a test square dug in Area A in 1967, and D is from the plowzone within Trench #11. Actual size

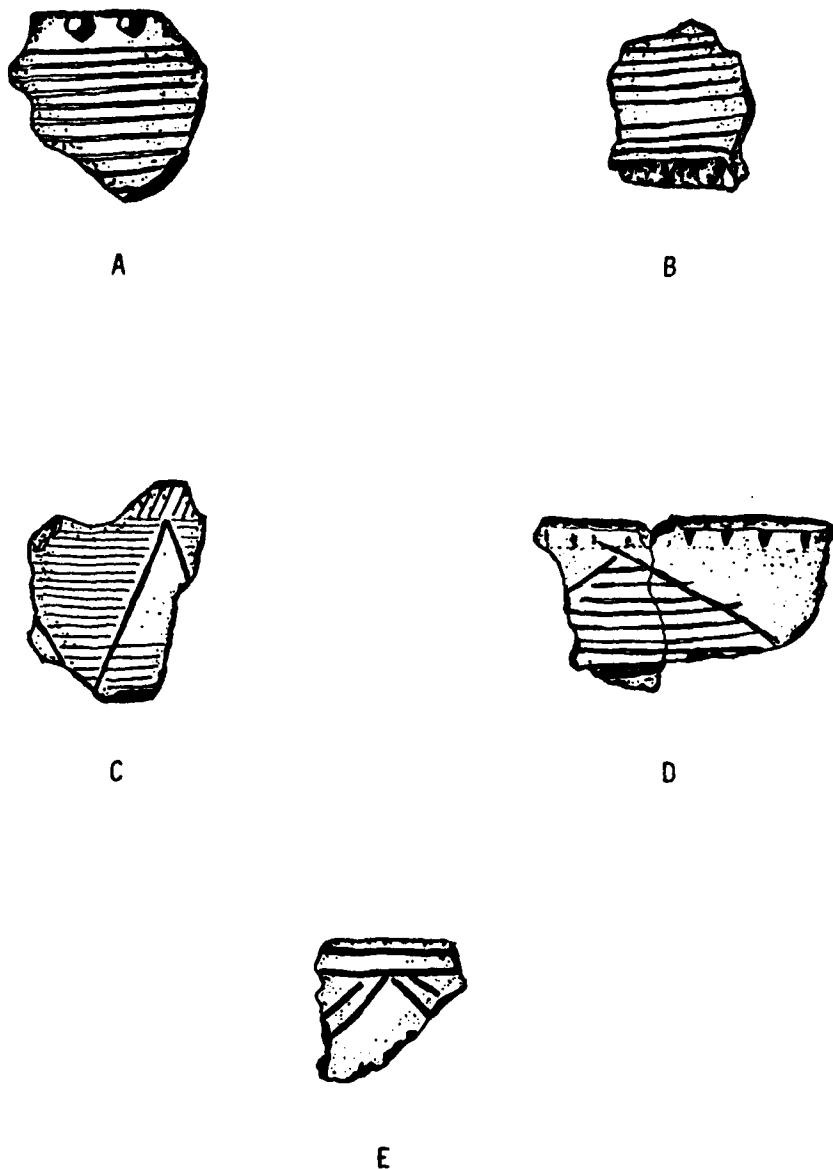


Figure 54. Selected Great Oasis Decorated Rims from 13BN38. (A) Rim #298, with incised lines and tool-impressed lip; (B) Rim segment #274, with incised lines; (C) Rim #63, with incised line decoration; (D) Rim #286, with incised line decoration and tool-impressed lip; (E) Rim segment #279, with incised line decoration. A and B are from below the plowzone within test squares dug in Area B in 1967, D and E are from the plowzone within test squares dug in Area B in 1967, and C is from the surface of Area B. Actual size

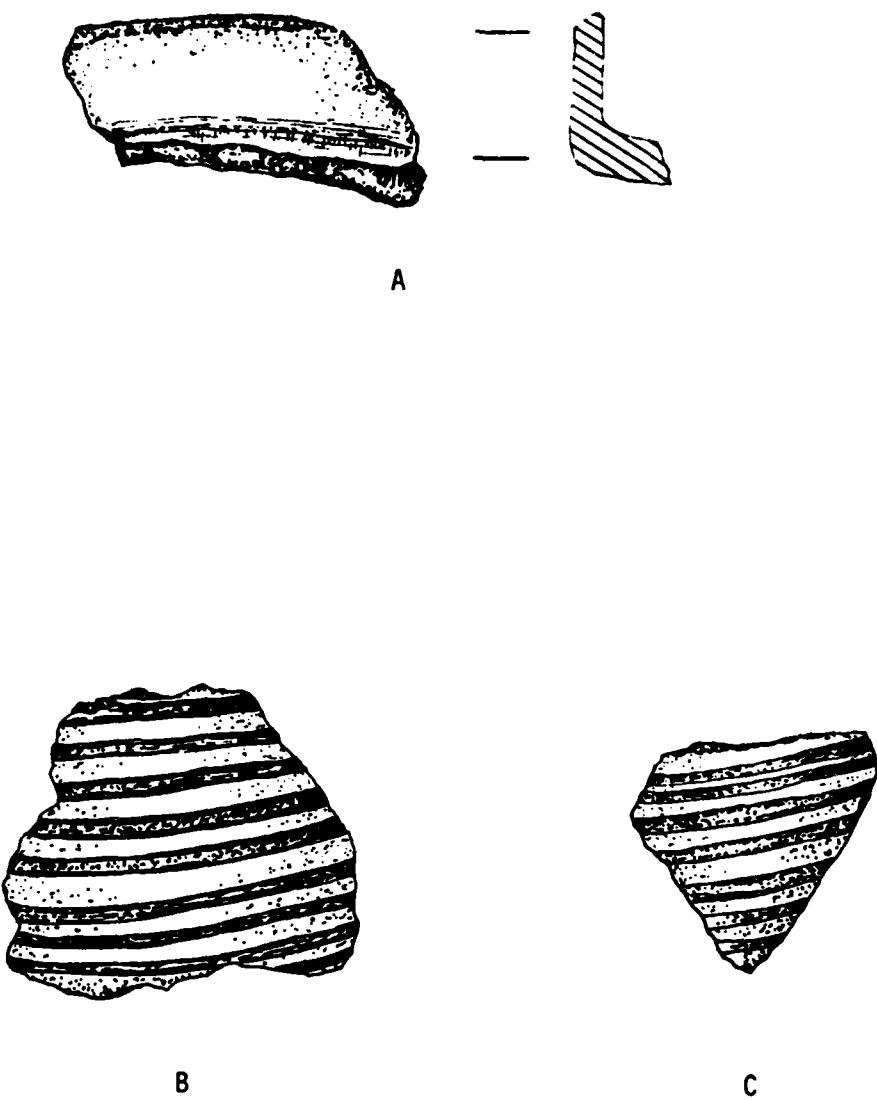


Figure 55. Selected Great Oasis Ceramics from 13BN38. (A) Great Oasis Plain rim/shoulder segment #307, shown with cross-section; (B-C) Great Oasis shoulder sherds #300 and 266, respectively, with wide incised or trailed lines. A and B are from below the plowzone within test squares dug in Area B in 1967; C is from the plowzone of a test square dug in Area B in 1967. Actual size

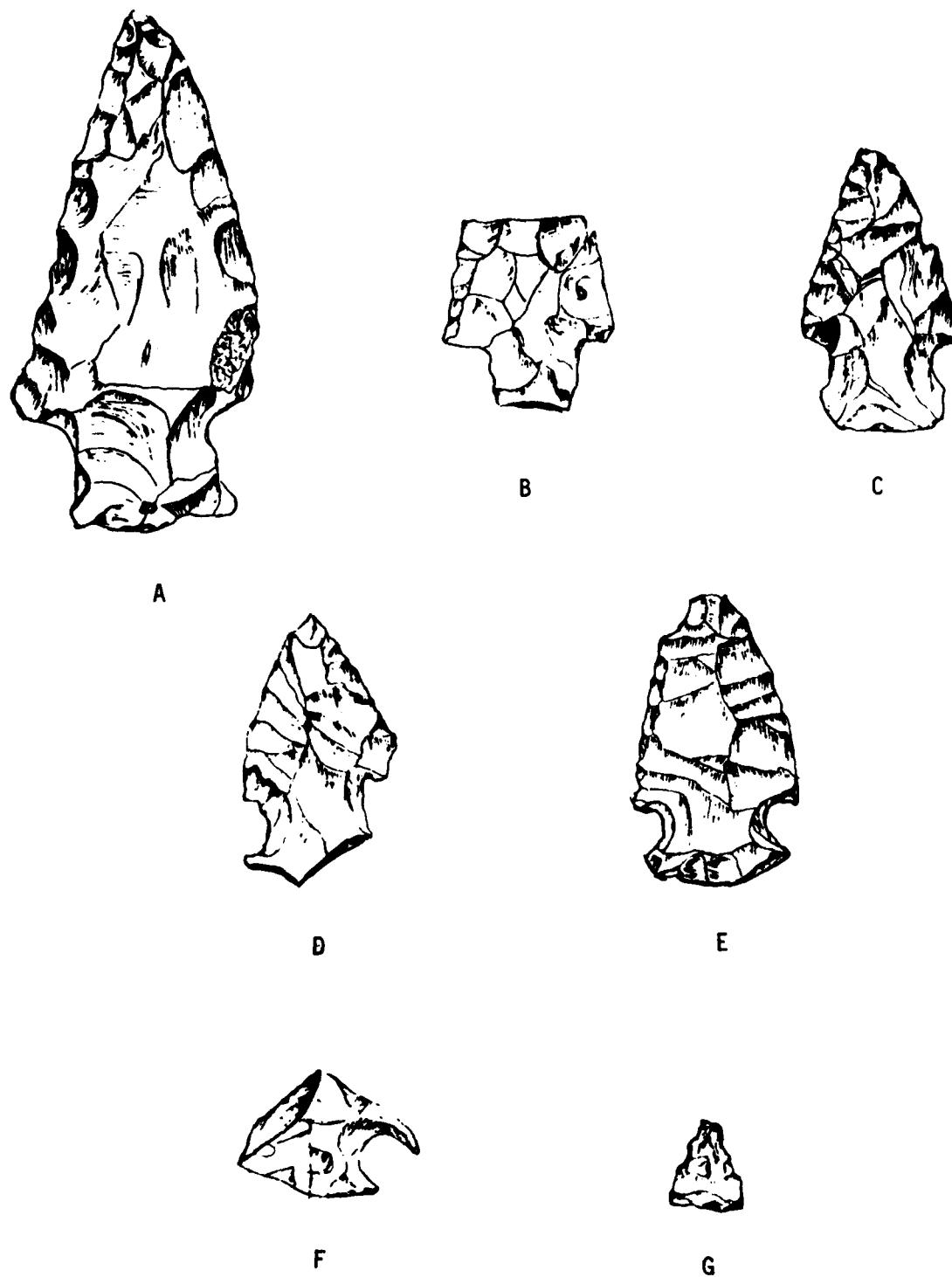


Figure 56. Selected Projectile Points from 13BN38. (A-B) Large to medium-size stemmed points #231 and 509, respectively; (C-D) Side notched points #453 and 153, respectively; (E-F) Corner notched points #322 and 48, respectively; (G) Small plain triangular point #83. A and D are from the plowzone within test squares dug in Area A in 1967; B is from the plowzone of Test Square #1; C, E, and F are from the surface of Area A; and G is from the surface of Area B. Actual size

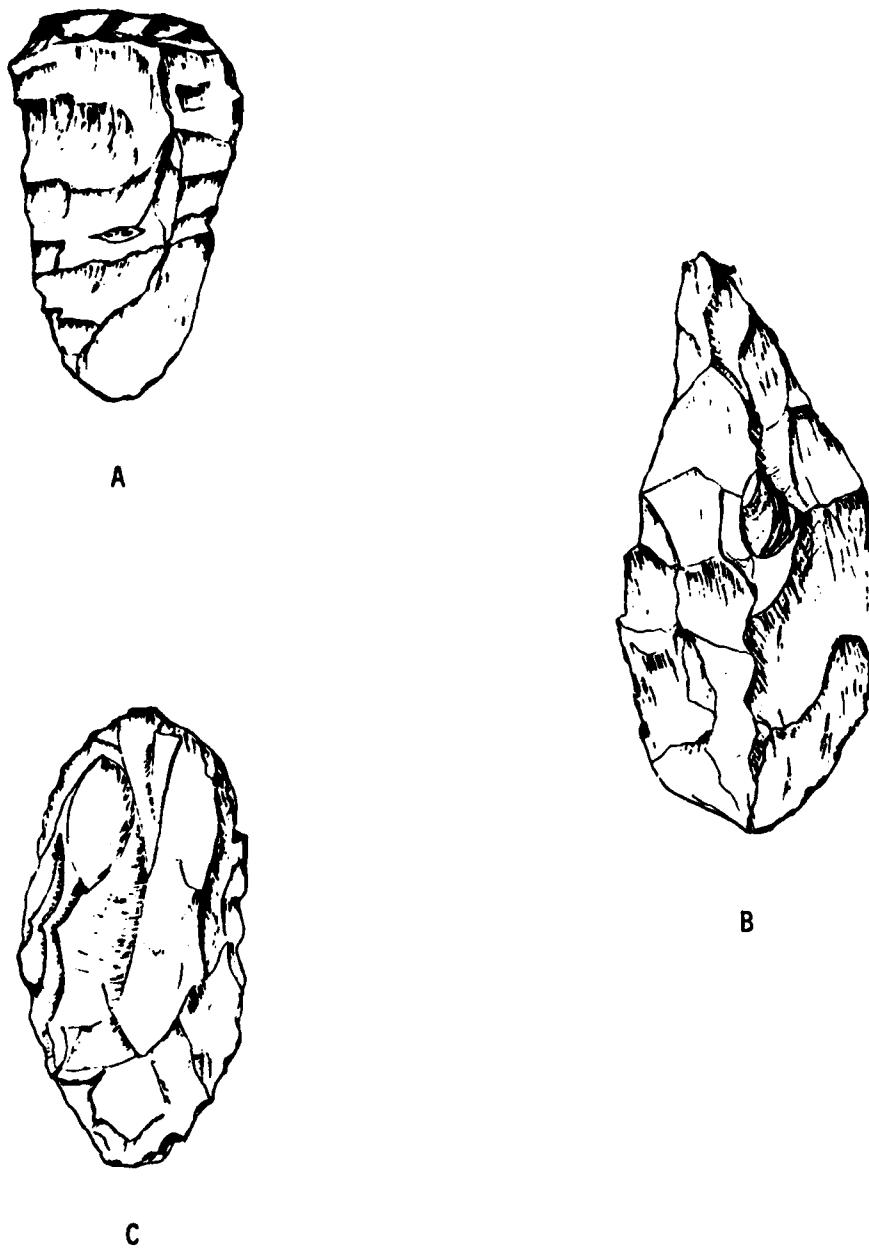


Figure 57. Selected Chipped Stone Tools from 13BN38. (A) End scraper #484, made from a broken biface; (B) Thick biface or preform #547; (C) Thick biface #51. All are from the surface of Area A. Actual size

group within this portion of the central Des Moines River Valley. The uniformity between the design elements and basic vessel shape employed in the Des Moines Valley ceramics and the similar characteristics reported for Havana-Hopewell components in eastern Iowa, much of Illinois, and the region beyond suggests strong cultural linkages over a considerable distance.

The data classes which may be attributed to the Great Oasis component in addition to the diagnostic ceramics include chipped stone tools such as small plain triangular projectile points (e.g. Figure 56, G), scrapers, thin bifaces, retouched flakes, and utilized flakes; knapping debitage such as shatter and waste flakes; and faunal remains such as deer teeth and fragmentary bone. It is suspected that the ground stone celt (Figure 58) may also be attributed to this component (cf. Anderson 1975: 35) but good contextual evidence for this is lacking. The Great Oasis ceramics represented at 13BN38 are analogous to those reported for site 13BN103, upstream on the Des Moines River and also within the Saylorville Lake project (Osborn and Gradwohl 1981: 593-595). The types found at 13BN38 include both Great Oasis Incised (e.g. Figure 54) and Great Oasis Plain examples (e.g. Figure 55, A). These are tempered with a fine grit and/or sand which contains a noticeable amount of micaceous flecking. Generally the exterior shoulder and body surfaces are smoothed and hard, although some cord roughening is possible. Occasionally the shoulder region is decorated with successive circumferential wide incised lines or trailing (Figure 55, B and C), an occurrence also noted in the 13BN103 inventory. The primary distribution of Great Oasis sites ranges from southwestern Minnesota and southeastern South Dakota into northwestern Iowa and down the Des Moines River Valley to its confluence with the Raccoon River in central Iowa (Gradwohl 1974: 96-97; Henning 1971; Johnston 1967: 54-64; Wilford 1945, 1955). These sites tend to be village areas with numerous storage pits and evidence for full-scale horticulture, and at the Broken Kettle West site in northwestern Iowa rectangular semi-subterranean house structures were defined within a Great Oasis context (Henning 1971: 128). Although some very important data may yet be derived from the Great Oasis materials collected at 13BN38, and from feature remnants if these should be uncovered and investigated in the future, the primary research potential of the Great Oasis component at the site appears to have been lost.

The present tests also confirmed the assumption that the Euro-American artifacts collected from the surface between 1967 and 1980 reflect a general scattering of debris from historic farmsteads nearby, for no historic features were found below the plowzone. One salient bit of evidence for the type of farm fencing in use in this area in the late nineteenth century is a segment of flat barbed "wire" the style of which is known as "J. Brinkenhoff Flat," patented in 1881 (Gradwohl 1975: 208); otherwise, the historic artifacts collected prior to the most recent test are relatively undistinguished. Currently few historic materials are visible on the surface, and none of those observed during the period of testing were considered significant enough to add to the site inventory.

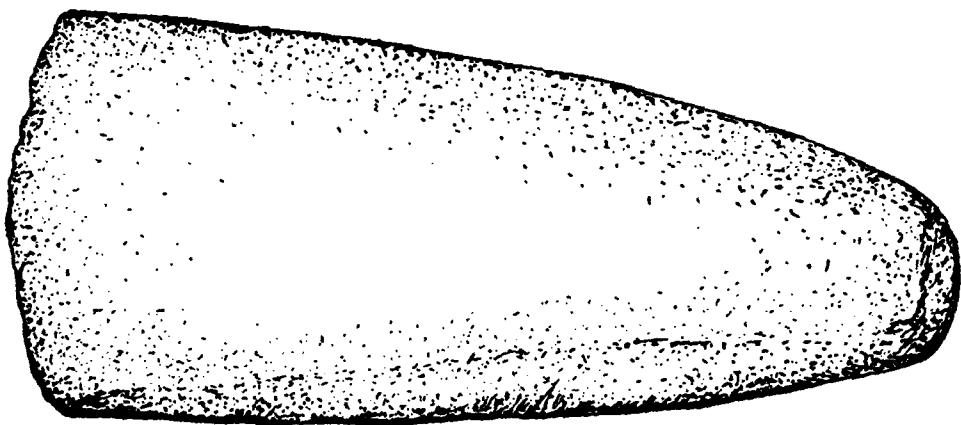


Figure 58. Ground Stone Celt from 13BN38. Specimen #467, manufactured of diorite with a highly polished surface. Collected from the surface of Area A. Actual size

Impacts of the Saylorville Lake Project on Site 13BN38

As discussed above, serious adverse impacts as a result of the construction of Saylorville Lake have already taken place over part of 13BN38. Trees were cleared from part of the riverine terrace escarpment and from the adjacent floodplain, after which the western portion of the site was used as the locus for "stacking and burning" of trees removed from a much wider area for management within the upper conservation pool and the flood control pool of the lake. Heavy machinery was used for these operations and the burn piles were bulldozed to contain the fires during burning and, ultimately, to cover over the debris. Evidence of this activity was uncovered during archaeological testing within Trench #3 and Test Square #4 on the terrace edge. This work removed enough of the terrace surface such that when plowing was resumed, plow disturbance was deeper than in the past and most, if not all, of the buried Great Oasis cultural horizon was destroyed.

A more long-range adverse impact to be realized at 13BN38 is the intermittent inundation and shoreline erosion which will occur whenever Saylorville Lake is allowed to rise within the flood control pool when sizable snow melt or heavy rains occur upstream. The Woodland cultural zone which remains at the site will be particularly susceptible to destruction by wave action within the flood control pool since this horizon is very near the ground surface. A potentially less destructive secondary impact, but one which still demands consideration, is the planned construction of a footpath through this portion of the valley between Sportsmen's Boat Launch and the Dogwood recreation satellite (refer to Plate III, Saylorville Lake Recreation Master Plan 6B, Rock Island District, U.S. Army Corps of Engineers, 1973).

Recommendations for Further Work at Site 13BN38

Future archaeological excavation at site 13BN38 is highly recommended based on the potential demonstrated by these tests for discovering significant information about the Middle Woodland Havana-Hopewell occupation at the site. Such work should be concentrated on the back portion of the river terrace and should be extended north and east of, as well as within, the area explored by the present testing. Since the cultural zone of this component is not deeply buried, relatively large horizontal areas over 400 square ft. (43 square m.) should be opened to gain contextual and settlement pattern information located just below the plowzone contact. To some lesser degree, similar means of exploration should also be undertaken to discover any intact remnants of the site's Great Oasis occupation, much of which has already been destroyed. These investigations may be most successful if focused along the terrace margin and on the westward terrace surface to the south and east of Trench #3, assuming this area was less disrupted by the tree-clearing activities.

13BN40

Environmental Context of Site 13BN40

Site 13BN40 is located on a riverine terrace and alluvial fan at the foot of the bluff slope above the left bank of the Des Moines River in Boone County, Iowa (Figure A-18). This locus is on the margin of relatively flat bottomlands which are prone to flooding and somewhat marshy conditions (refer to Figure A-19). The site's position lies between 875 and 900 feet above mean sea level and covers an area of 5 to 7 acres (2 to 3 hectares). Boundaries of the site are the wooded slopes to the north and east; on the south lies an upland drainage enhanced by farming practices during the historic period, and the interface of the terrace with the bottomlands forms the western boundary. Until Federal acquisition of the property the site area had been under cultivation. Farmsteads once lay immediately to the northwest and to the southeast of 13BN40. The once-plowed field quickly became overgrown with weeds, grass, and small trees after farming was abandoned.

The soil upon which the site occurs is mapped as Moingona loam, 1-5% slopes, which is derived from loamy alluvium (USDA Soil Conservation Service 1981: 28, 70, and Sheet 39). This soil is moderately well drained. Field inspection of the overlying alluvial fan showed it to be composed of Terril soils formed in loamy alluvium and also moderately well drained (refer to Appendix C). Modern soil accumulation over the original terrace surface here is as much as 1.0 ft. (30 cm.) deep. Erosion within and upslope from the site has been accelerated in the last several years within the cross-country tracks and hill-climbing trails left by motorcycles and four-wheel drive vehicles.

Previous Investigations at 13BN40

Site 13BN40 was designated in 1964 by the Office of the State Archaeologist on the basis of information provided by a collector; however, the survey party sent out that year from the office was unable to locate the site by way of surface finds (Ashworth and McKusick 1964: 10). Two years later the site's location was field checked by Lionel Brown of the Smithsonian Institution River Basin Surveys. His team collected an end scraper and three waste flakes from the site and observed additional "stone flakes, shell fragments, and broken crockery" on the ground surface (Brown 1966: 14). Because of the apparent paucity of cultural material at 13BN40, Brown felt the site probably did not warrant further investigation.

In the summer of 1967, personnel from the Iowa State University Archaeological Laboratory went to the site under the aegis of a contract between the National Park Service and Iowa State University to conduct archaeological investigations within the Saylorville Lake area. The site was still being cultivated at that time and the crew was able to recover one small grit-tempered body sherd, a stemmed projectile point (Figure 62, B), retouched and utilized flakes, core fragments, shatter, waste flakes, and freshwater mussel shell, as well as a relatively abundant amount of historic porcelain, china, and stoneware pieces.

Under a continuation of the former contract with the National Park Service, Iowa State University archaeologists again checked the site early in the summer of 1969. At that time a few flakes were recovered as were selected bits of historic china and bottle glass; however, surface survey conditions were not optimal as the ground had been allowed to revert to fallow conditions following acquisition of the property by the Federal Government. The status of 13BN40 as of 1973 was reported in summary to the U.S. Army Corps of Engineers-Rock Island District as part of a roster of known sites within the Saylorville Lake region (Gradwohl and Osborn 1973b: 35). In that summary it was suggested that, should further diagnostic materials be found as a result of continued survey, 13BN40 should be tested to determine the significance of data yet available from the site.

During the survey of Reconnaissance Unit 16, part of an intensive archaeological reconnaissance of the upper reaches of the Saylorville Lake region by Iowa State University in 1975 under contract with the U.S. Army Corps of Engineers, site 13BN40 was again checked. By this point the area was being used extensively by motorcyclists and operators of 4-wheel-drive vehicles for recreational purposes. The resulting tracks and climbing trails opened large sections formerly covered by vegetation and bared the area to accelerated erosion. Both prehistoric and historic artifacts were exposed in this manner including more stemmed points, a Great Oasis rim sherd (Figure 61,A), several grit tempered body sherds, bifaces and other chipped stone tool fragments, lithic debitage, and historic domestic debris. This information, along with data gathered from prior searches at the site, was provided to the Corps with the recommendation that the site be extensively tested and, if merited, further excavation should take place there to determine the temporal and spatial relationships of the components apparently represented in the surface collections (Gradwohl and Osborn 1976: 161-162).

Because public access into the 13BN40 area was frequent and continuous, several visits were made to the site from 1976 through 1980 by monitors and other personnel from the Iowa State University Archaeological Laboratory for the purpose of salvaging as much surface information as possible.

The inventory for 13BN40 was more than doubled during this time and the diagnostic pieces recovered include stemmed and notched projectile points (e.g. Figure 62, C, F, and G), plain triangular points (e.g. Figure 62, H and I), grit tempered cord roughened ceramics, as well as additional historic pieces.

Statement of Research Objectives for Site 13BN40

Surface collections made at 13BN40 between 1967 and 1980 by the Iowa State University Archaeological Laboratory included diagnostic materials representing a long temporal-cultural span from Late Paleo-Indian/Archaic through Woodland, Great Oasis, and finally to historic Euro-American occupation of this portion of the central Des Moines Valley. For this reason the site was deemed of Priority I status for archaeological testing, along with the fact that this specific area was slated for recreational development in conjunction with the operation of Saylorville Lake.

The primary objective in testing 13BN40, then, was to ascertain whether any or all of the cultural components represented on the surface remained in intact form as cultural zones at the site and what the areal extent of such zones might be. Another goal was to determine if any cultural zones, as yet not represented in the surface collection, might lie deeply buried at the site. If one or more components are found to be intact, then the data available could be useful in providing answers to some of the research questions posed for the Saylorville region. Among these is the question of the relationship between a Great Oasis occupation here and manifestations either here or elsewhere more generally classified as Late Woodland, the question of the probability and degree of Great Oasis/Oneota cultural interaction in the region, as well as the question of the relationship of Middle Woodland manifestations which occur in this portion of the Des Moines Valley with those of the Havana tradition in the Mississippi Valley to the east.

Of particular interest also is the collection of botanical and faunal information which would contribute to a fuller understanding of the environmental settings within which the prehistoric inhabitants of the central Des Moines Valley operated. This objective has been formulated into one of the research questions for the project area, and the geomorphological setting in which site 13BN40 is found -- a former terrace surface partially buried by modern slopewash -- would seem to provide some potential for the recovery of such environmental, as well as cultural, data. Although aspects of Des Moines Valley culture history from the Archaic and the historic Euro-American periods are not dealt with specifically in the research questions posed for the Saylorville area, any data which might be available on those occupations from 13BN40 would, of course, be recorded.

Statement of Methodology at Site 13BN40

It had been proposed that initially three transects of soil probes, spaced at 200 ft. (66 m.) intervals, would be placed across 13BN40 in an attempt to define the potential areal extent of the site and to ascertain the degree of damage which had resulted from the heavy use of motorcycles and off-road vehicles there. This plan was altered after consultation with the soil scientist, Thomas Bicki, who felt that more closely spaced probes taken along the axes of the major geomorphological features at the site would more effectively provide the data needed. Therefore, on 7 October 1980, three transects, totalling fifteen 2-inch (5 cm.) diameter probes, were made at the site and the locations of these probes were recorded using a transit and stadia (refer to Figure 59). The first transect was begun on the footslope and was extended across an alluvial fan and riverine terrace surface. The second was begun at the low escarpment formed by this terrace and was extended out across the floodplain toward the Des Moines River. A third alignment of more widely spaced probes followed the terrace and alluvial fan surface northwest from and nearly at a right angle to the first transect. The analysis of the soil cores taken showed that the floodplain did not contain any buried soil horizons and would not likely have been an area for prehistoric habitation. The terrace and lower portion of the alluvial fan, on the other hand, were found to have been formed at the same time as similar land features directly to the north -- land features upon which prehistoric cultural occupation was demonstrated to have occurred at site 13BN27. Gravely slopewash deposits which had accumulated over the last century and a half were found to overlie portions of the alluvial fan/terrace complex, burying the original soil surface. It was noted that extreme dryness of the soil and compaction from vehicle tires made analysis of the cores more difficult than usual.

Because of planting considerations, archaeological testing of those sites included in this contract which were currently being cultivated was done before similar investigations could be completed at the sites now on fallow ground (refer to the discussion for site 13BN27). Since 13BN40 fell within the latter group, the final phases of testing there did not commence until 8 June 1981. At that time five backhoe trenches were dug at the site to expose several continual vertical profiles both along and perpendicular to the axis of the riverine terrace and overlying alluvial fan (see Figure 60). Following the advice of both soil scientists involved in the project, Trenches #1 through 3 were aligned along the first probing transect on the terrace/fan surface. Trench #4 was on the same landform to the north and west. Trench #5 was placed on the footslope in the northwest portion of the site. All trenches were 2.0 ft. (61 cm.) wide and ranged in length from 25 to 40 ft. (8-13 cm.). Recent slopewash was apparent to depths up to 1.0 ft. (30 cm.) below the present surface in all of the trenches (refer to Appendix C) and generally much of this material was incorporated into the plowzone, often leaving a thin band of glacially-derived gravelly material below the plowzone contact. The C soil horizon

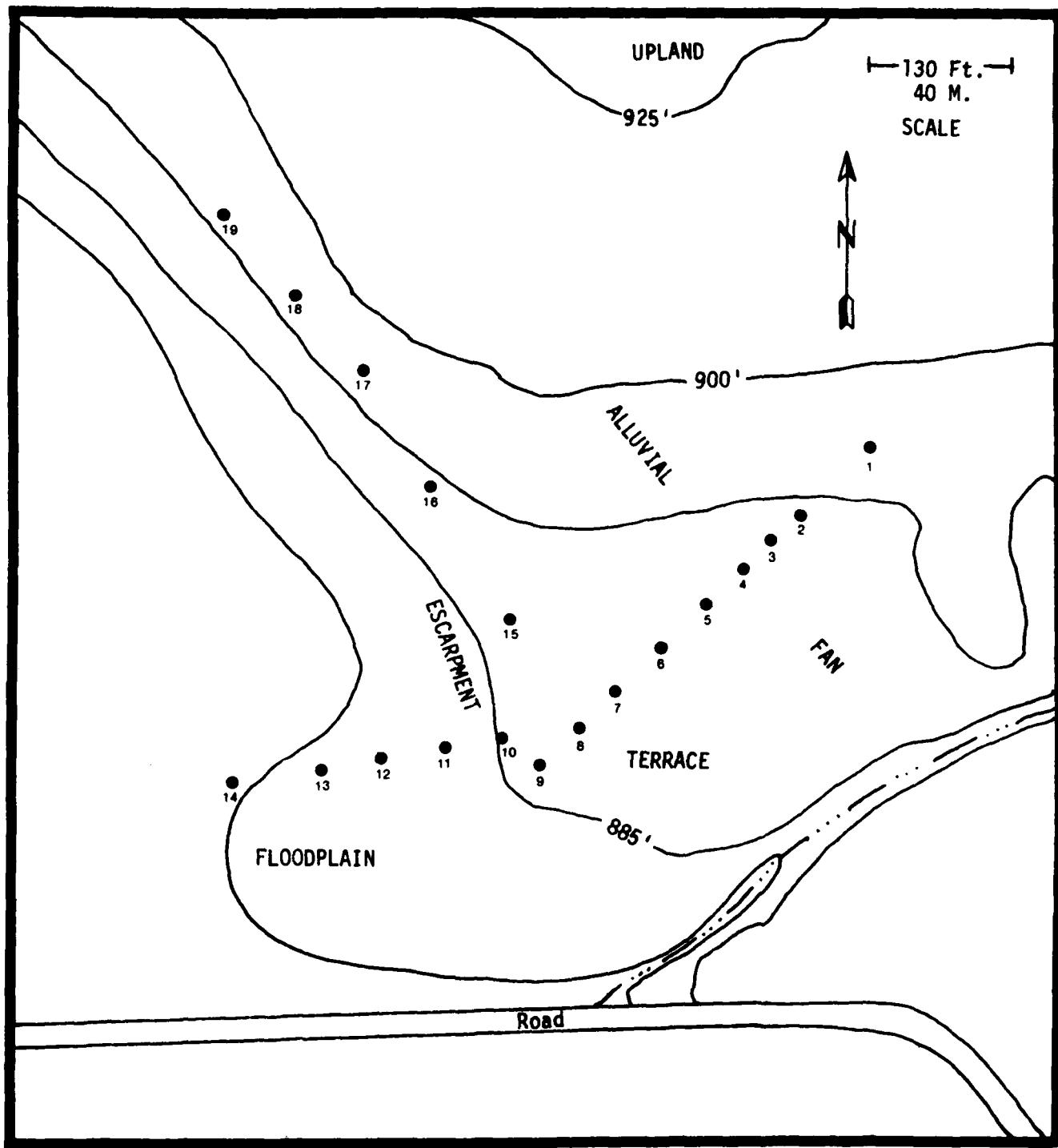


Figure 59. General Geomorphology and Placement of Soil Probing Transects at Site 13BN40

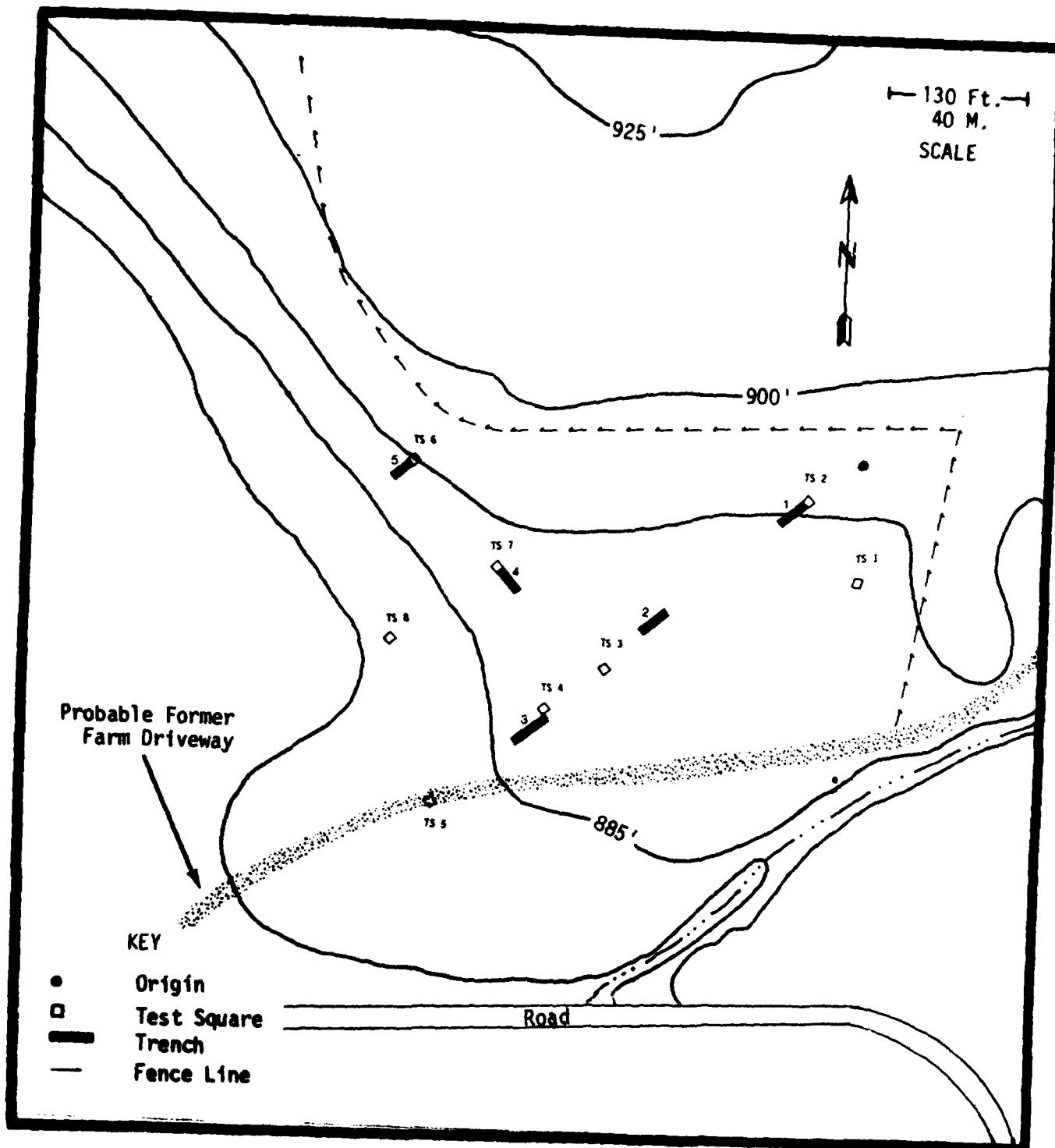


Figure 60. Placement of Test Trenches and Test Squares at Site 13BN40

was encountered at depths ranging from 3.9 to 5.5 ft. (119-168 cm.); however, because of the clay-laden nature of the lower portion of the profiles exposed, it was determined that cultural deposits, if present, would likely occur fairly high in the soil profiles. The only material recovered from any of the trenches was a wood charcoal sample from a depth of 1.8 ft. (55 cm.) within Trench #3 which cannot be definitely attributed to cultural origin.

Heavy ground cover, compaction of the soil, and the gravelly nature of the soil immediately below the plowzone argued against the utility of a horizontal machine scrape at the site to gain any horizontal cultural distribution information. Instead, eight hand-dug test squares were scattered over the site area to sample the potential for buried cultural materials. Each test unit was 5 ft. (1.5 m.) square and the fill removed from each was sifted through 1/2-inch mesh hardware cloth screens. Two of these squares, #5 and 8, were placed on the floodplain as a control over the soil core information. Test Square #5 could be dug no deeper than 0.8 ft. (24 cm.) before a compacted surface of water-worn pebbles was hit, now thought to be the remains of a farm driveway which once traversed the base of the slope (refer to Figure 60). Test Square #8 was taken to 1.8 ft. (55 cm.) and the entire profile was found to be mixed with recent alluvium and gravel; an historic iron buckle was recovered from a depth of 1.5 ft. (46 cm.). Test Square #1 was placed on the footslope in the eastern portion of the site. The compacted slopewash here was so hard, however, that the unit could be dug no deeper than 0.2 ft. (6 cm.). Test Square #2 was situated at the upslope end of Trench #1 and also on the footslope. Here the plowzone was found to be shallow (0.65 ft. or 20 cm. deep) and composed entirely of slopewash materials. Two utilized flakes, eight waste flakes, and two historic molded glass fragments were recovered from the plowzone. The square's depth was extended to 1.4 ft. (43 cm.) and no further cultural materials were found. Clay was encountered from a depth of 1.0 ft. (30 cm.) to the base of the unit.

To the west and also on the footslope, Test Square #6 was situated at the upslope end of Trench #5. Both historic and prehistoric materials showed up here in the plowzone, including a burned stoneware sherd, two glass fragments, and two white china plate rims, plus one smoothed grit tempered sherd, three waste flakes, and two freshwater mussel shells. Below slope-wash materials at 1.4 ft. (43 cm.) a soil stain of white and yellow/orange fill was defined within which a waste flake and charcoal was found (refer to Plate 16); this somewhat amorphous stain was designated Feature 1. The horizontal dimensions were roughly 2.2 ft. (67 cm.) in length and 1.5 ft. (46 cm.) in width, with a maximum vertical thickness of 0.2 ft. (6 cm.). The feature fill was collected for later water flotation in the laboratory. As excavation of this unit progressed below the level of Feature 1, the soil remained generally organic and black, unlike soil profiles encountered elsewhere in the site. This was interpreted as a

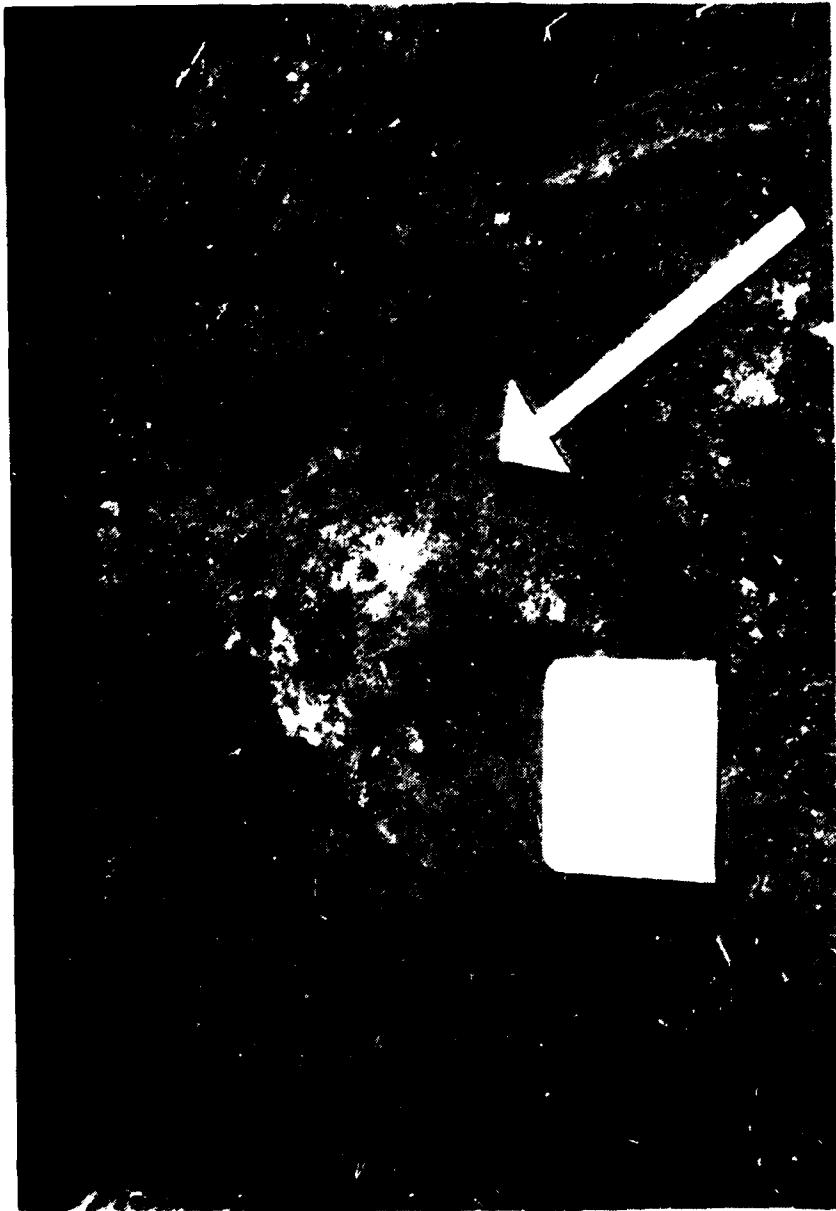


Plate 16. The Horizontal Definition of Feature 1, a Soil Stain Containing Charcoal and a Waste Flake, within Test Square #6 at Site 13RH40. This feature was located at a depth of 1.4 ft. (43 cm.) on a buried surface below recent slopewash materials. View is to the north northeast.

particularly thick accumulation of anciently-deposited alluvium from the uplands. One waste flake was recovered between 1.8 and 2.2 ft. (55-67 cm.), a seventh flake was collected between 2.6 and 3.0 ft. (79-92 cm.), and a utilized flake and two more waste flakes were recovered between depths of 3.0 and 3.4 ft. (92-104 cm.). The square was dug to a final depth of 3.8 ft. (116 cm.); heavy clay was first encountered at 3.4 ft. (104 cm.). Several krotovinas had been noted around a depth of 2.2 ft. (67 cm.); otherwise, the profile appeared not to have undergone recent disturbance.

Test Squares #3, 4, and 7 were placed on the surface of the alluvial fan-covered terrace. Here the plowzone thickness was between 0.8 and 1.0 ft. (24-30 cm.). Test Square #3 was established between Trenches #2 and 3 and was dug to a depth of 2.0 ft. (61 cm.). Nine weathered grit tempered sherds, three of which are quite thick (10 mm.); two utilized flakes; and twelve waste flakes were recovered from the plowzone and plowzone contact. Immediately below that zone and down to a depth of 1.6 ft. (49 cm.) in apparently undisturbed context were found a utilized flake and two more waste flakes. No cultural remains were found below that depth. Test Square #4 was dug just off the corner of Trench #3 to a depth of 1.6 ft. (49 cm.). Again the plowzone yielded cultural materials including one cord roughened body sherd, a thick biface fragment, a retouched flake, two utilized flakes, nine chunks of chert shatter, twelve waste flakes, two bovid tooth fragments, a piece of calcined bone, and some charred wood. The only item of cultural origin from primary context below recent slopewash material in the square is one waste flake from 1.4 ft. (43 cm.). Test Square #7 was placed at the end of Trench #4 and was dug to a maximum depth of 2.0 ft. (61 cm.). The plowzone produced two waste flakes plus historic materials in the form of two cut iron nails and a heavy iron chain link fragment. Immediately below slopewash deposits at 1.1 to 1.5 ft. (34-46 cm.) were found two decorated grit tempered body sherds, two smoothed grit tempered body sherds, one waste flake, and a chert nodule (refer to Table 8). The two decorated sherds -- one of which is illustrated in Figure 61, B -- are apparently from the same vessel and bear zones of cross-hachuring and cord impressions bounded by wide incised lines. One additional waste flake was collected between 1.5 and 2.0 ft. (46-61 cm.) before heavy clay was reached.

The field strategy implemented at 13BN40 was somewhat more intensive than that originally proposed. This was deemed necessary for two reasons: (1) The soil scientists discovered that the soil deposition sequence was more complex at the site than was originally assumed, so more backhoe trenches were required to provide data for better understanding the geomorphological sequence at the site, and (2) Heavy ground cover and disturbance and compaction of the soil by recent off-road vehicle traffic made penetration of the soil difficult in many areas, so horizontal scraping was not considered feasible and more hand-dug test units were substituted. The extreme dryness of the soil at the time testing took place was also a factor in the choice of field methods applied at 13BN40.

PREHISTORIC ARTIFACTS		Total	Materials Collected Prior to Testing	Materials Collected During Testing	Surface (cultivated field & cycle trails)	Ap or Plowzone	
<u>Ceramics</u>							
Great Oasis Incised rim	1	1	-	1	-	-	
Decorated grit tempered vessel segments (Havana Zoned)	2	-	2	-	-	2	
Undecorated or cord marked grit tempered vessel fragments	60	40	20	47	11	2	
<u>Chipped Stone</u>							
Stemmed projectile points (including a stemmed lanceolate point)	4	4	-	4	-	-	
Medium-sized corner notched points and point fragments	4	3	1	4	-	-	
Small plain triangular points	2	2	-	2	-	-	
End scraper	1	1	-	1	-	-	
Graver/perforator	1	-	1	1	-	-	
Thin bifaces (including point segments)	13	10	3	13	-	-	
Thick bifaces	10	8	2	9	1	-	
Retouched flake/scrapers	4	4	-	4	-	-	
Retouched flakes	19	14	5	18	1	-	
Utilized flakes	81	68	13	73	5	3	
<u>Chipped Stone Source & Waste Material</u>							
Cores & core fragments	11	10	1	11	-	-	
Shatter chunks	49	31	18	40	7	2	
Waste flakes	480	378	102	426	30	23	1
<u>Ground Stone</u>							
Possible axe blank	1	-	1	1	-	-	
Pecked hammerstones	2	2	-	2	-	-	
<u>Unworked Stone Source Material</u>							
Chert nodule	1	-	1	-	-	1	
HISTORIC ARTIFACTS							
<u>Ceramics</u>							
Porcelain & ironstone vessel fragments	35	32	3	33	2	-	
Stoneware vessel fragments	55	50	5	54	1	-	
<u>Glass</u>							
Clear, green, amethyst, & milkglass container fragments	19	14	5	15	4	-	

Terrace surface below slope-wash deposits; generally the A3/B21t soil horizon -- depth & thickness variable
Feature 1; soil stain at slopewash/terrace contact

Scalped projectile points (including a stemmed lanceolate point)	4	4	-	4	-	-	-
Medium-sized corner notched points and point fragments	4	3	1	4	-	-	-
Small plain triangular points	2	2	-	2	-	-	-
End scraper	1	1	-	1	-	-	-
Graver/perforator	1	-	1	1	-	-	-
Thin bifaces (including point segments)	13	10	3	13	-	-	-
Thick bifaces	10	8	2	9	1	-	-
Retouched flake/scrapers	4	4	-	4	-	-	-
Retouched flakes	19	14	5	18	1	-	-
Utilized flakes	81	68	13	73	5	3	-
<u>Chipped Stone Source & Waste Material</u>							
Cores & core fragments	11	10	1	11	-	-	-
Shatter chunks	49	31	18	40	7	2	-
Waste flakes	480	378	102	426	30	23	1
<u>Ground Stone</u>							
Possible axe blank	1	-	1	1	-	-	-
Pecked hammerstones	2	2	-	2	-	-	-
<u>Unworked Stone Source Material</u>							
Chert nodule	1	-	1	-	-	1	-
HISTORIC ARTIFACTS							
<u>Ceramics</u>							
Porcelain & ironstone vessel fragments	35	32	3	33	2	-	-
Stoneware vessel fragments	55	50	5	54	1	-	-
<u>Glass</u>							
Clear, green, amethyst, & milkglass container fragments	19	14	5	15	4	-	-
<u>Metal</u>							
Iron cut nails	4	2	2	2	2	-	-
Miscellaneous iron & brass fragments (including a mower blade, harness parts, chain link, & a washer)	6	4	2	4	2	-	-
ECOLOGICAL MATERIALS							
Bovid tooth fragments	4	1	3	2	2	-	-
Calcined bone fragments	1	-	1	-	1	-	-
Unidentifiable bone fragments	2	2	-	2	-	-	-
Freshwater mussel shell fragments	6	3	3	4	2	-	-
Charred wood & wood charcoal samples	3	-	3	-	1	1	1
	881	684	197	773	72	34	2

Table 8. Tabular Summary of Archaeological Materials Recovered from Site 13BN40. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.

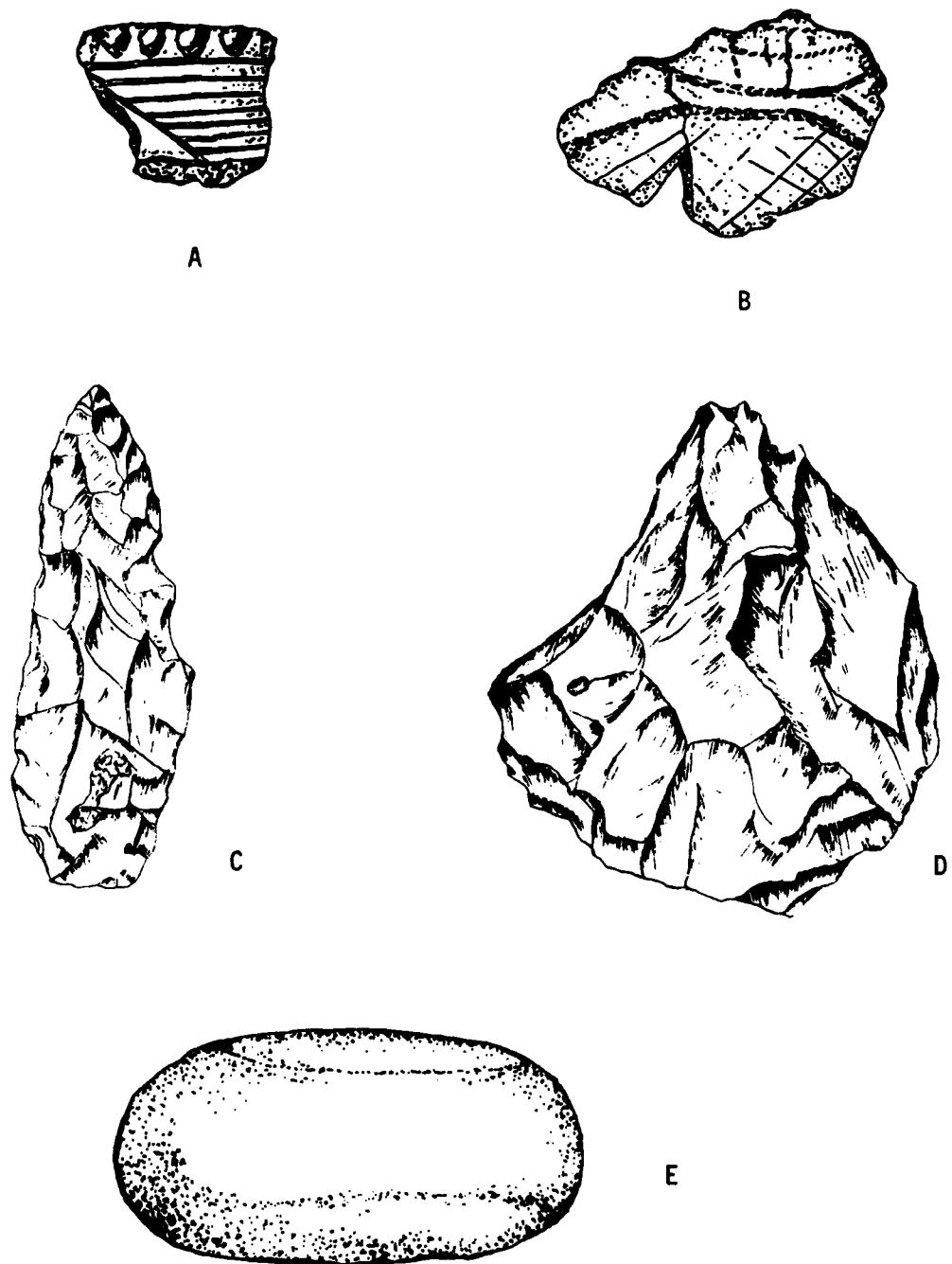


Figure 61. Selected Prehistoric Artifacts from 13BN40. (A) Great Oasis Incised rim #48; (B) Grit tempered body sherd #341, with incised and cord impressed decoration; (C) Thin lanceolate biface #154; (D) Chert core #203; (E) Diorite hammerstone #146. B is from Test Square #7 at 0.9 to 1.1 ft. (27-34 cm.) deep; all other specimens are from the surface. Actual size

Results of Testing at Site 13BN40

Geomorphological analysis has shown that site 13BN40 is located on the same terrace system as that found to the north on which site 13BN27 is located. Alluvial and colluvial deposits from the adjacent uplands were laid down in varying thicknesses over this terrace in the distant past, providing a surface upon which prehistoric peoples settled. Deposition of more slopewash material was sharply accelerated in the mid-1800s when Euro-Americans moved into the area, cut down many of the trees, opened large areas on the uplands to agriculture, and mechanically enhanced the natural drainage systems. The recent downslope soil deposits which resulted have measurably shaped and altered the landforms visible at 13BN40 today.

Archaeological tests conducted at the site have shown that part of at least one cultural zone, possibly a Woodland domestic settlement or chipping station, exists within the alluvium immediately below the recent slopewash. The depths at which this occupation occurs over the site is variable, but generally cultural materials may be found within 2.0 ft. (61 cm.) of the surface. The notable exception is in the vicinity of Trench #5 and Test Square #6 where the alluvium extends to a depth of 3.4 ft. (104 cm.). Flotation of the fill from Feature 1, a thin soil stain isolated on the buried fan surface within Test Square #6, produced a waste flake resulting from thinning of a biface, several small rodent bones and teeth, some unburned bone, land snail shells, burned earth, and wood charcoal bits, in addition to the waste flake and charcoal collected during excavation. The purpose of this feature is unclear, and evidence of its unquestioned cultural origin remains tenuous. The only distinctively diagnostic artifacts from this general zone are two ceramic body sherds which appear to have come from one vessel and may be typologically classified as Havana Zoned on the basis of body design alone (cf. Griffin 1952: 106). Diagnostic materials which are likely to once have been associated with the Middle Woodland horizon and this ceramic vessel include some of the stemmed and all of the corner notched projectile points and point fragments (e.g. Figure 62, B-G) which were collected from the site's surface (cf. Ritzenthaler 1967: 25, 28-29).

The collective prehistoric artifact classes present at the site include ceramics; chipped stone tools such as projectile points, thin bifaces (e.g. Figure 61, C), thick bifaces or preforms, retouched flakes, and utilized flakes; chipped stone source and waste materials such as cores (e.g. Figure 61, D), chunks of shatter, and waste flakes; and ground stone in the form of a hammerstone (Figure 61, E) and an axe blank. Faunal remains include small amounts of bone, some tooth fragments, freshwater mussel shell, and land snail shells. Plant remains are found only in the form of wood charcoal. Flint knapping and tool rejuvenation are obviously one of the major activities represented in the material inventory from the site.

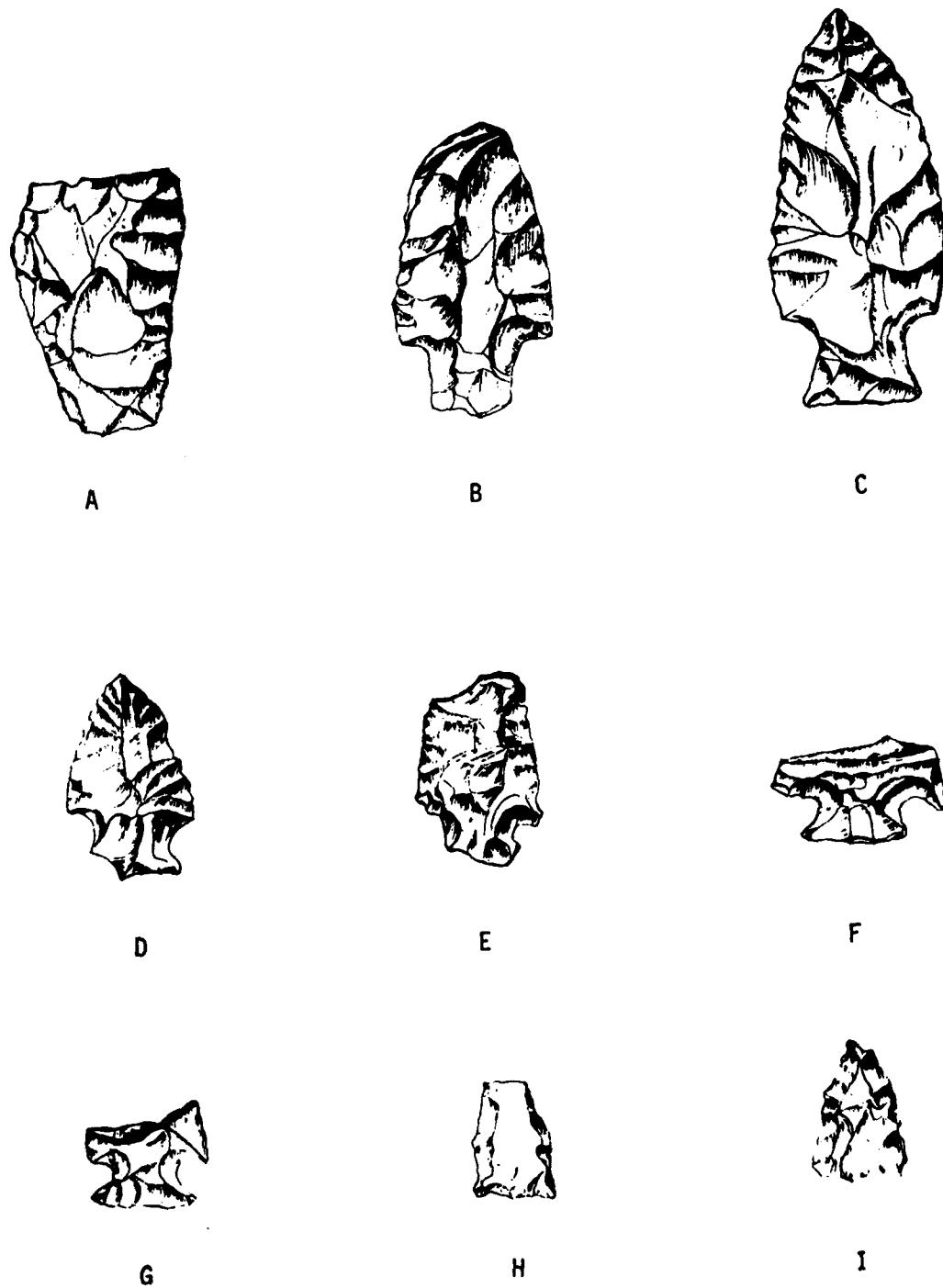


Figure 62. Selected Projectile Points from 13BN40. (A) Lanceolate stemmed point segment #92; (B-C) Stemmed points #10 and 244, respectively; (D-G) Corner notched points #93, 354, 112, and 247, respectively; (H-I) Plain triangular points #113 and 245, respectively. All are from the surface. Actual size

Other diagnostic cultural materials collected at 13BN40 which are thought to represent a Late Paleo-Indian/Archaic manifestation (e.g. Figure 62, A and B) as well as a Great Oasis occupation (e.g. Figure 61, A and Figure 62, H and I) have been recovered only from the surface and, therefore, have lost contextual integrity (cf. Gradwohl 1974: 97; Ritzenthaler 1967: 18-19, 21). The historic ceramic, glass, and metal objects undoubtedly have come from nearby farmsteads within the last century and a half; some of these materials are clearly modern "dump" refuse.

In terms of answering specific research questions posed for the central Des Moines Valley, then, the archaeological tests at 13BN40 show that the site may yet provide a limited amount of data toward the reconstruction of local culture history. The greatest potential lies with the apparent Middle Woodland occupation at the site, which may be an analogue to components in the nearby sites of 13BN27, 13BN30, 13BN123, and 13BN182 -- all of which were tested under this contract.

Impacts of the Saylorville Lake Project on Site 13BN40

Archaeological site 13BN40 lies within the upper reaches of the Saylorville Lake flood control pool, a position which will be subject to intermittent inundation whenever the lake is allowed to rise near its maximum limit during flood storage. Erosional attrition from wave action along the temporary shorelines which will be created will undoubtedly destroy the shallowly-buried cultural deposits at the site.

Severe impacts to the cultural resources at the site have already been realized from the public's use of this area for motorcycle hill-climbing and recreational operation of four-wheel-drive vehicles over undeveloped terrain. Original plans drawn up by the U.S. Army Corps of Engineers had scheduled this area for recreational development as a controlled motorized vehicle use area to be called Old Bridge (Plate IX, Saylorville Lake Recreation Master Plan 6B, Rock Island District, U.S. Army Corps of Engineers, 1973). Construction of a parking lot and comfort station was shown for the specific locus of 13BN40, and the development of sand pits on the upland sideslopes to provide the "hazards" desired by those who would be using the area was planned. After Federal acquisition of the property for the construction of Saylorville Lake had taken place, however, the public began off-road vehicle use of the area without benefit of any formal recreational facilities and without evident control from Federal, Iowa Conservation Commission, or local law-enforcement agencies. It became known locally as the "Mondt Motorcycle Area" and, along with the denudation and gullying of the land from the vehicle tires, the building of campfires and some dumping of refuse there became commonplace.

Although an attempt was made during the archaeological testing of 13BN40 to avoid areas of obvious disturbance such as deeply-cut motorcycle trails, campfire sites, and the like, it was found that the ground surface had generally become compacted from hard use. Excavation was made quite difficult, even with the employment of power machinery, and analysis of stratigraphic and soil profile information was more problematical than usual. Many of the artifacts collected from the surface during the test were found within the bare "circling" areas on the terrace surface and in gullied trails up the footslopes where the topsoil had been eroded away. From the tests it is now known that this material might have been derived from primary cultural contexts, but such evidence cannot be verified.

Recommendations for Further Work at Site 13BN40

The archaeological tests at site 13BN40 have shown that some potential does exist there for providing information on a Middle Woodland habitation within the central Des Moines Valley. However, given the circumstances of continued public use of the area and the relative dearth of quantitative cultural evidence in primary context there, a higher potential is felt to exist at site 13BN106, directly to the southeast, for gathering comparable geomorphological and cultural data. Certainly archaeological monitoring of any recreational development planned at the site, in lieu of further tests or excavation, should be required to guard against the unnecessary destruction of primary cultural resource data.

13BN102

Environmental Context of Site 13BN102

Site 13BN102 is located on a riverine terrace remnant or stream bench and adjacent floodplain surface above the left bank of the Des Moines River in Boone County, Iowa. This locus is slightly downstream and across the channel from the mouth of Bluff Creek as it empties into the Des Moines (refer to Figure A-20). The site's position lies between 879 and 890 feet above mean sea level and covers an area of 8-10 acres (3 to 4 hectares). The present limits of the site are a county gravel road to the north, the wooded bluff slope to the east, trees and a fenceline to the south, and the tree-lined fence along the river channel to the west (Figure A-21). The high Chicago and Northwestern railroad bridge crosses the river to the south of the site. Within the historic period the site area has been continuously under cultivation.

The soils upon which the site occurs have been mapped as Calco silty clay loam, 0-2% slopes, and Wadena loam, 32 inches to 40 inches to sand and gravel, 2-5% slopes (USDA Soil Conservation Service 1981: 22, 31, 58, 76 and Sheet 38). The former is a poorly-drained silty and loamy alluvium derived from glacial till. The Wadena loam is well-drained loamy alluvium underlain by sand and gravel. It is the latter which forms the stream bench thought to have been the main area on which prehistoric habitation occurred, although prehistoric surface materials can be found on the floodplain surface as well.

Previous Investigations at Site 13BN102

Site 13BN102 was designated on 9 April 1967 by David Gradwohl and two colleagues while conducting field checks within the upper reaches of the Saylorville Lake area preparatory to field investigations that Iowa State University would undertake that year for the National Park Service. Because cultivation of the field for the season had not yet been completed, survey conditions were not optimal in April of 1967; however, four chert waste flakes were recovered from the ground surface. Subsequent checks made of the area in June 1967 and later in June of 1969 revealed more surface finds in the form of grit tempered cord roughened ceramics including one rim (Figure 65, A) and several body sherds, some nondiagnostic chipped stone tool fragments (e.g. Figure 65, D, E, and G), chert shatter and waste flakes, burned and unburned

bone, mussel shells, unworked hematite and limonite, and some historic china (e.g. Figure 66, C). The status of the site was summarized in 1973 for the U.S. Army Corps of Engineers-Rock Island District in a roster of all then-identified archaeological sites in the Saylorville area (Gradwohl and Osborn 1973b: 36).

Site 13BN102 was field checked again in June of 1975 during the survey of Reconnaissance Unit 16, part of the intensive archaeological reconnaissance of the upper Saylorville Lake region completed by Iowa State University in 1975 under a contract with the U.S. Army Corps of Engineers-Rock Island District. Additional cord roughened and smoothed grit tempered ceramics, a utilized flake, and waste flakes were collected and this information, along with the data gathered previously, was reported (Gradwohl and Osborn 1976: 163-164). Because the site's location lay within the flood control pool of Saylorville Lake and was also scheduled for development as a county park and recreation area, the recommendation was made that the site be tested to determine the nature of the prehistoric occupation there.

Surface inspection of 13BN102 took place on an ad hoc basis in April of 1976 and in June of 1978, 1979, and 1980 in hopes of locating additional materials which would define the site's cultural affiliation. This search produced more grit tempered sherds, two plain triangular point bases (Figure 65, B and C), chert biface fragments (e.g. Figure 65, A), and bone. The materials recovered were generally undistinguished except that one of the bones proved to be a human middle phalange of the third digit of the foot. Historic debris in the form of china, stoneware, glass, and metal as well as some modern lead bullets were also collected and added to the site's inventory (refer to Table 9).

Statement of Research Objectives for Site 13BN102

Although surface indications were somewhat limited, cultural materials collected at site 13BN102 since its discovery in 1967 hinted that at least two prehistoric cultural components were possible there -- one of Woodland affiliation on the basis of ceramics found and the other a Late Woodland or post-Woodland manifestation signaled by the presence of small triangular projectile points.

Additional information regarding both of these cultural periods is sought in the specific research questions posed for this portion of the Des Moines Valley. Larger Middle Woodland sites such as 13BN30 and 13BN182 are recorded for this immediate locality and it is possible that there might be a direct relationship between the inhabitants of 13BN102 and the people who had built the Boone Mound (13BN29) and lived in nearby villages directly south of 13BN102. Relationships could

PREHISTORIC ARTIFACTS

Thin bifaces	4	4	-	4	-	-
Thick biface	1	1	-	1	-	-
Retouched flake/scraper	1	1	-	1	-	-
Utilized flakes	20	20	-	20	-	-
<u>Chipped Stone Source & Waste Material</u>						
Core	1	1	-	1	-	-
Shatter chunks	4	4	-	4	-	-
Waste flakes	97	96	1	96	-	1
<u>Ground Stone</u>						
Sandstone abrader	1	1	-	1	-	-
Anvilstone	1	1	-	1	-	-
Smoothed stone	2	2	-	2	-	-
<u>Unworked Stone Source Material</u>						
Hematite & limonite	3	3	-	3	-	-
Quartzite cobble	1	1	-	1	-	-
HISTORIC ARTIFACTS						
<u>Ceramics</u>						
Porcelain & ironstone vessel fragments	8	8	-	8	-	-
Stoneware vessel fragments	2	2	-	2	-	-
<u>Glass</u>						
Clear, amber, & green container fragments	3	3	-	3	-	-
<u>Metal</u>						
Iron hook	1	1	-	1	-	-
Lead bullets	3	3	-	3	-	-
HUMAN OSTEOLOGICAL REMAINS						
Phalange -- 3rd toe, middle	1	1	-	1	-	-
ECOLOGICAL MATERIALS						
Potentially identifiable mammal bone & tooth fragments	2	2	-	2	-	-
Calcined bone fragments	4	4	-	4	-	-
Unidentifiable bone fragments	8	8	-	8	-	-
Freshwater mussel shell fragments	8	8	-	8	-	-
	197	195	2	195	-	2

Table 9. Tabular Summary of Archaeological Materials Recovered from Site 13BN102. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.

also be possible between any post-Woodland inhabitants at 13BN102 and those of post-Woodland Great Oasis sites just upstream such as 13BN130 and 13BN103. Although not addressed specifically by the research questions, some interesting historic domestic materials had also been collected which were assumed to have come to the area with Euro-American settlers in the mid to late nineteenth century. Potential development of the area for park facilities, in addition to these culture-historical questions, led to the consideration of 13BN102 for Priority I archaeological testing.

The primary goal of archaeological tests conducted at 13BN102 would be to ascertain if, indeed, one or both of the prehistoric components assumed for the site exists and what the nature and extent of these occupations might be. Should a Woodland cultural horizon be found, it is hoped that a more discrete culture-temporal assignment might be made on the basis of diagnostic materials added to the inventory through testing -- specifically, does this horizon represent Middle Woodland with Havana-Hopewell affinities, a Late Woodland occupation, or the residence of a cultural group transitional between the two. If a Late Woodland occupation is present, one objective would be the isolation of the similarities and differences between this cultural manifestation and known Great Oasis components nearby to elucidate the allied research question. Any additional information available on early historical settlement of the central Des Moines Valley would also be gathered.

Statement of Methodology at Site 13BN102

Soil probing at site 13BN102 for the purpose of archaeological tests was delayed until 4 November 1980 since harvesting of the corn crop there did not take place until the beginning of that month. At that time eight 2-inch (5 cm.) diameter solid cores were taken with a truck-mounted hydraulic probe along two transects, one in a south-south-westerly direction originating from a terrace remnant near the county gravel road and extending out across the undulating floodplain of the Des Moines River and the other in an east/west alignment just off the terrace and between the first transect and the footslope of the eastern valley wall (refer to Figure 63). As discussed for other tested sites, the proposed use of a gridded pattern of probes was scuttled in favor of carefully-selected transects on the advice of the soil scientist. The probes on the terrace remnant were taken to depths between 10 and 12 ft. (305-366 cm.) while those on the floodplain were much shallower at 4 ft. (122 cm.). Sandy loam was found throughout the profiles and the C soil horizon on both land features was found to occur between depths of 1.5 and 2.3 ft. (46-70 cm.). No buried soil profiles were found below this zone.

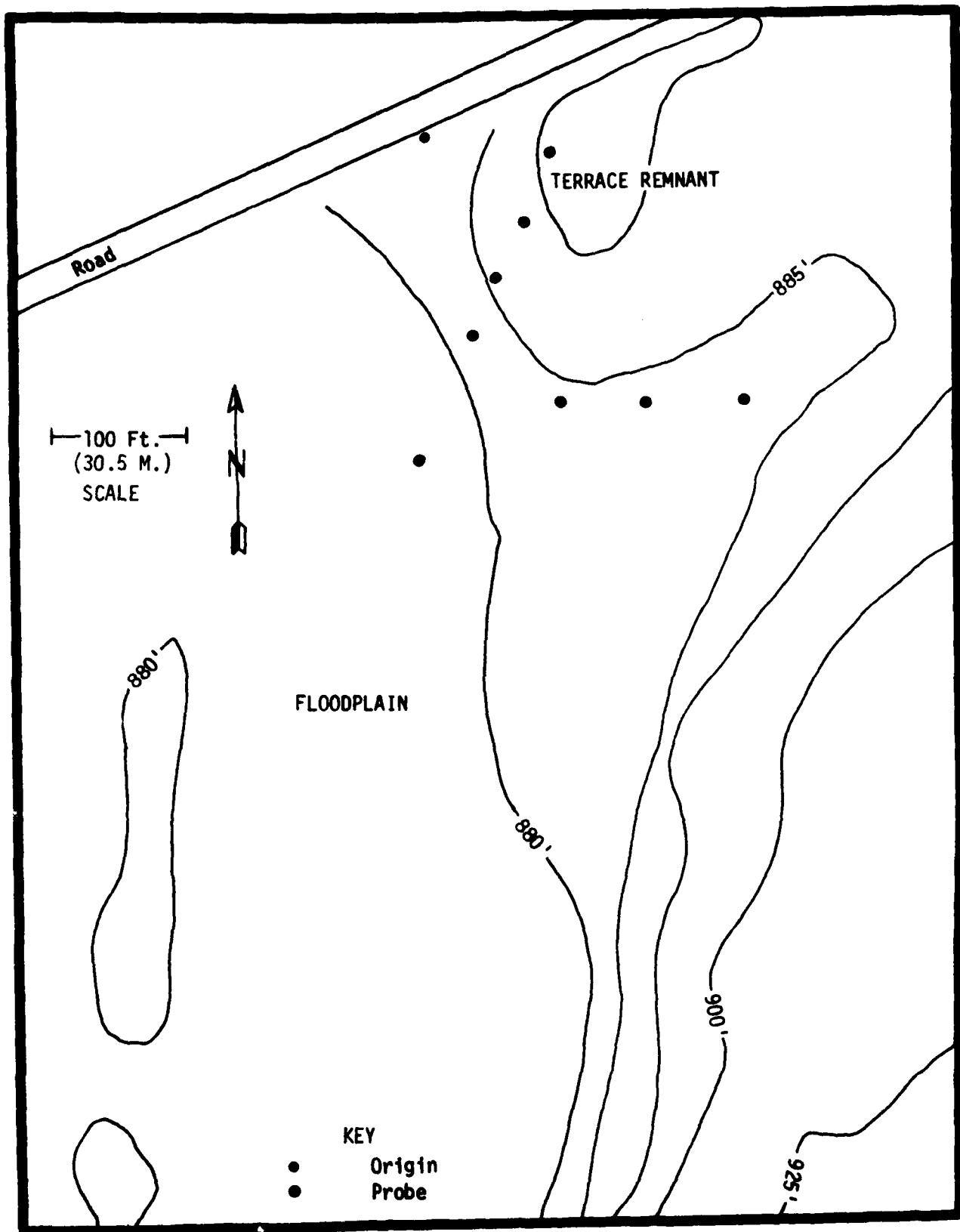


Figure 63. General Geomorphology and Placement of Soil Probes at Site 13BN102

Testing was resumed on 30 March 1981 with the excavation of nine backhoe trenches to quickly uncover broader vertical profile information. Trenches were dug generally in two interrupted alignments: Trenches #1 through 5 were oriented north/south from near the terrace remnant summit to the margin of the terrace with the floodplain, and Trenches #6 through 8 were oriented east/west beginning with the position of Trench #5 and extending west on the floodplain toward the river (refer to Figure 64). Trench #9 was placed 100 ft. (33 m.) south of Trench #8 and also on the floodplain since surface materials gathered in preceding years had come from this part of the field as well as that to the north and east. The trenches were 2 ft. (61 cm.) wide and were dug no deeper than 2.0 to 2.5 ft. (61-76 cm.) on the basis of the earlier probe information. The soils uncovered by this means were entirely alluvial in character, exhibiting a relatively shallow plowzone, 0.5 ft. (15 cm.) thick or less, underlain by the rest of an undisturbed cumulic A soil horizon (refer to Appendix C). The terrace soils were analyzed to be slightly acid while those on the floodplain are slightly alkaline. The slight acidity should be beneficial in the preservation of organic remains if these are present as cultural or ecofactual materials. The point at which Trenches #5 and 6 came together was expanded with the backhoe to explore in more detail the unconformity created by the juncture of the terrace slope with the floodplain. Neither were materials of cultural origin uncovered in any of the trenches nor were there any cultural features exposed in the trench walls.

In an attempt to locate any subplowzone cultural materials in primary horizontal context a machine scrape covering an area of 400 square ft. (43 square m.) was made on the floodplain surface between Trenches #8 and 9 (refer to Figure 64), an area from which artifacts had been collected from the surface in the past. The plowzone contact was shovel skimmed by hand to clean the surface, yet no cultural features or artifacts were exposed by this technique nor was there any indication of an undisturbed cultural horizon here.

For further control, two hand-dug test squares were completed: Test Square #1 was placed on the terrace slope between Trenches #4 and 5 and Test Square #2 was placed north of Trench #1 on the summit of the terrace remnant (refer to Figure 64). Both units were 5 ft. (1.5 m.) square; the former was dug to a terminal depth of 1.6 ft. (49 cm.) and the latter to 1.5 ft. (46 cm.). The fill from both was sifted through 1/2-inch mesh hardware cloth screens to maintain greater control a each square was being dug. Nothing was found in Test Square #1, but one grit tempered cord roughened body sherd and a waste flake were recovered from subplowzone deposits in Test Square #2 at a depth of 1.4 ft. (43 cm.). Immediately below these finds was a sterile erosion surface of rocky clay which also had been defined within Trench #1 directly to the south (refer to Appendix C). Throughout the testing period no additional artifacts had been observed or collected from the site's surface.

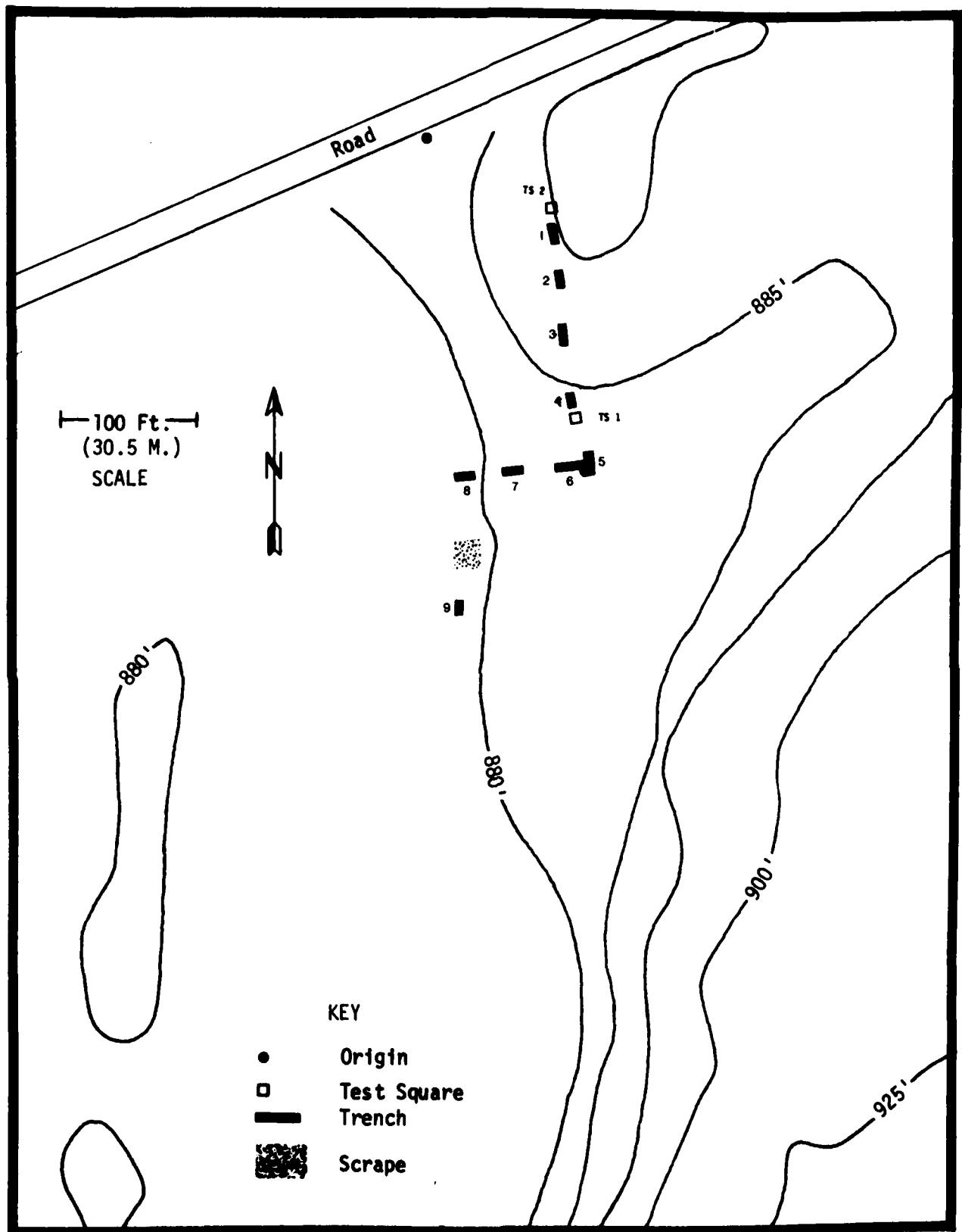


Figure 64. Placement of the Horizontal Scrape, Test Trenches, and Test Squares at Site 13BN102

Results of Testing at Site 13BN102

Given the material collected from the surface of site 13BN102 since its discovery in 1967, the results of archaeological testing at the site are rather disappointing. Little additional data has been generated by this test to help formulate responses to specific research questions asked in regard to the central Des Moines Valley. It appears now that most of the cultural remains found in the past at the site are likely to have been derived from the plowzone. Potential for discovering further such materials in primary archaeological contexts is lost with the possible exception of data which may be restricted to the summit portion of the terrace remnant within the zone immediately below plow disturbance and above a stratigraphic unconformity at a depth of 1.5 ft. (46 cm.). This trace of a cultural zone is probably of Woodland affiliation based on the single piece of grit tempered pottery recovered from Test Square #2; however, little more may be reconstructed from the slim evidence available. It has been determined, however, that earlier deeply-buried cultural manifestations probably do not exist at this site based on the soils information obtained.

The classes of prehistoric artifact data available from the site include grit tempered ceramics; a limited number of chipped stone tools, most of which are not diagnostic (e.g. Figure 65, D-H); chipped stone source materials and debitage in the form of a core nucleus (Figure 66, B), shatter chunks, and waste flakes; and ground stone represented by a sand-stone abrader with irregular U-shaped grooves (Figure 66, A). Most of the prehistoric ceramic fragments are undistinguished body sherds with the exception of one eroded rim (Figure 65, A) which bears a smoothed exterior and faint oblique cord-wrapped stick impressions on the interior. Such a rim could fit within a Havana Plain ware classification (cf. Griffin 1952: 101-104), thus placing it within a Middle Woodland cultural milieu. The two bifacially-retouched chert tool fragments (Figure 65, B and C), interpreted as the bases of plain triangular projectile points, are thought to represent a later culture-temporal setting -- one of Late Woodland or post-Woodland affiliation (cf. Gradwohl 1974: 95, 97; Osborn, Gradwohl, and Thies 1978: 44-49). None of these diagnostic pieces, however, can be unquestionably associated with the cultural zone which lies extant at the site. One sample of human osteological material -- a middle phalange of the third toe -- was also collected from the surface and raises some speculation as to the potential for finding mortuary evidence at the site, although no such evidence was found during the present tests.

Historic artifactual remains include domestic ceramics in the form of ironstone china and stoneware vessel fragments; clear, amber, and dark green-colored bottle pieces; an iron hook; and modern .22 and .380 caliber bullets. Much of this is refuse scatter from nearby farmsteads dating

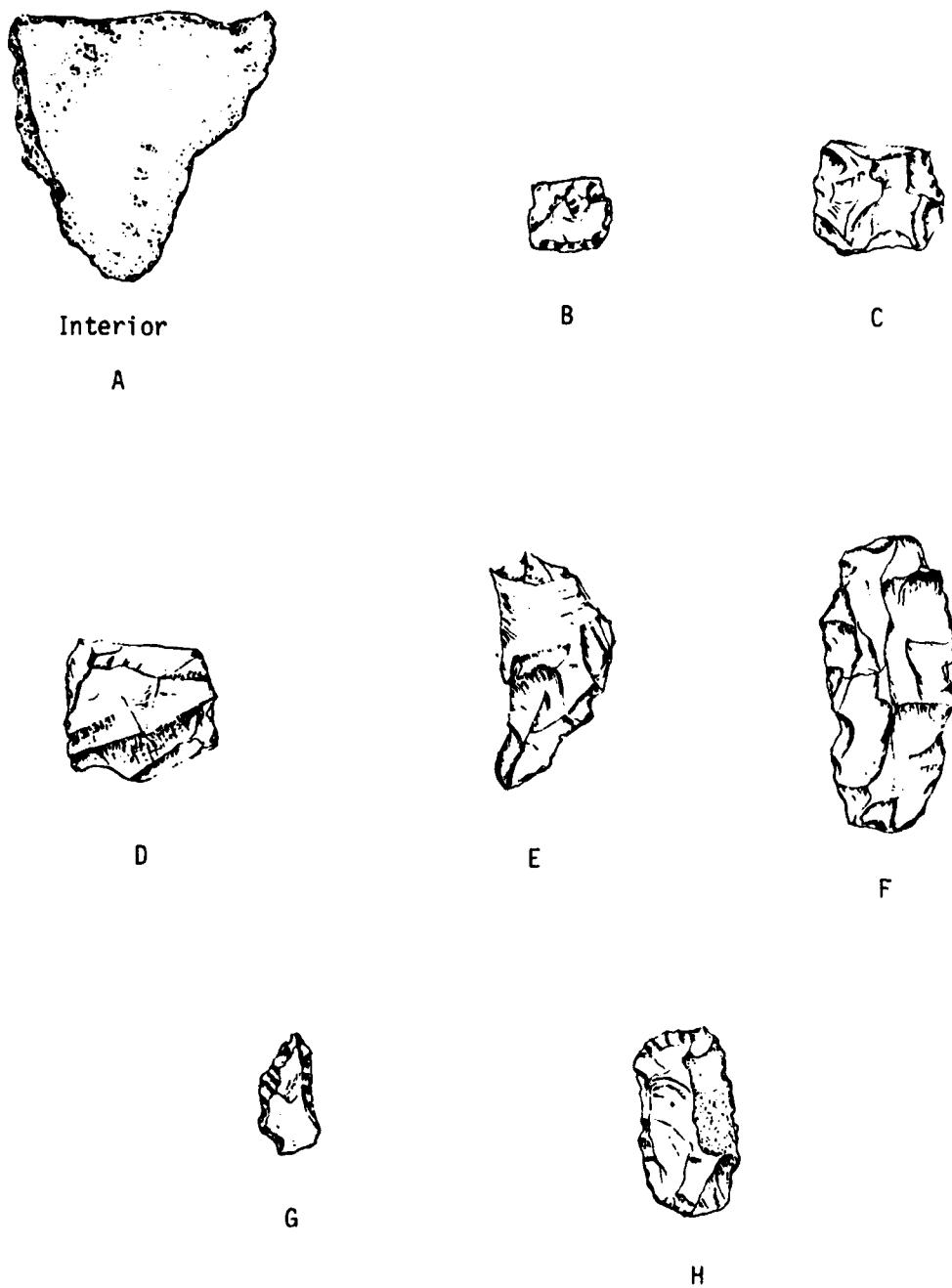
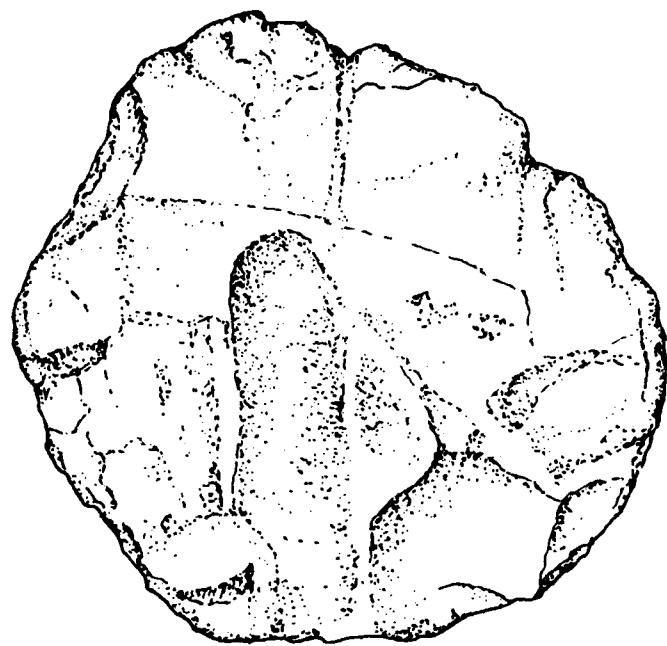


Figure 65. Selected Ceramics and Chipped Stone Tools from 13BN102. (A) Cord roughened rim #34, with cord-wrapped stick impressions on rim interior; (B-C) Small plain triangular point fragments #93 and 65, respectively; (D-F) Thin biface fragments #35, 16, and 62, respectively; (G) Graver #44; (H) Retouched flake/scraper #96. All are from the surface. Actual size



A



B



C

Figure 66. Selected Prehistoric and Historic Artifacts from 13BN102. (A) Sandstone abrader #80; (B) Spent chert core #52; (C) Historic ironstone cup rim #31, with green transfer decoration. All are from the surface. Actual size

from the latter 1800s and early 1900s which probably found its way to this field when manure and other garbage was spread there as natural fertilizer. Other classes of material data available from the surface of 13BN102 include unworked stone such as hematite and limonite and faunal remains such as a mammal tooth fragment, burned and unburned unidentifiable bone fragments, and freshwater mussel shell segments.

It is now felt that much of site 13BN102 may have been destroyed when the county gravel road to the north was constructed, since the terrace, of which only a remnant remains in this field, is cut through by the road as it proceeds upslope from the river bridge (refer to Figure A-21 and Figure 64). More of the terrace surface is available to the north of the road cut, and it is suspected that portions of the same occupation(s) represented by surface finds and limited subplowzone materials at 13BN102 may yet be extant at that location.

Impacts of the Saylorville Lake Project on Site 13BN102

Archaeological site 13BN102 is located within the upper reaches of the flood control pool of Saylorville Lake. In this position the site will be subjected to intermittent inundation whenever the lake is allowed to rise above elevation 880 feet for flood storage. Shoreline erosion from wave action and the rapidly fluctuating lake levels will undoubtedly destroy the cultural context of the shallowly-buried artifactual and eco-factual remains on the terrace remnant at the site.

Secondary adverse impacts may be anticipated if a proposed horse trail is constructed between Polecat Hill recreation satellite and the Waterworks Park operated by the City of Boone on the Des Moines River (refer to Plate III, Saylorville Lake Recreation Master Plan 6B, Rock Island District, U.S. Army Corps of Engineers, 1973). It was learned that some consideration had also been given to the establishment of a small county park at the site locus, although formal plans for such development have not been seen.

Recommendations for Further Work at Site 13BN102

The archaeological testing conducted at 13BN102 did not reveal data either of sufficient quantity or quality to indicate that the site retains much potential for answering research questions posed for reconstruction of the culture history of the central Des Moines Valley. Therefore, further research investigations at the site are not recommended at this time. However, should any construction for recreational development or other earthmoving take place at the site, it is urged that an archaeological monitor be on hand to guard against the loss of any pertinent data which may be exposed.

13BN106

Environmental Context of 13BN106

Site 13BN106 is located on an alluvial fan overlying a riverine bench at the foot of the bluff slope above the left bank of the Des Moines River in Boone County, Iowa (Figure A-22). This location is on the margin of a relatively flat bottomland which is prone to flooding and somewhat marshy conditions (refer to Figure A-23). The site's position lies between 875 and 890 feet above mean sea level and covers an area of 2 to 4 acres (1-1½ hectares). The site is bounded on the north by an artificially straightened drainageway and farm lane; on the east by the wooded bluff slope, farm lane, and former farmstead and on the south and west by the interface of the terrace with the bottomland. Throughout the historic period the locus of 13BN106 has been under cultivation.

The soil upon which the site occurs is mapped as Coland clay loam, 0-2% slopes, which is derived from loamy alluvium (USDA Soil Conservation Service 1981: 16, 60 and Sheet 39). This forms the terrace surface and tends to be poorly drained. Field inspection showed the footslope or fan deposits to be of the Terril soil series, which is also derived from loamy alluvium. These fan deposits may vary in thickness from 6 to 18.5 feet (2 to 6 meters), and on the upper portion of the footslope the top 20 to 40 centimeters is composed of recently accumulated soil (refer to Appendix C). Erosion in recent years has been accelerated by the recreational use of the area for motorcycles and four-wheel-drive vehicles.

Previous Investigations at 13BN106

Site 13BN106 was located and designated by personnel from the Iowa State University Archaeological Laboratory on 17 June 1967 while under contract with the National Park Service to conduct archaeological work within the Saylorville Lake area. A sparse amount of prehistoric material, including a notched projectile point fragment (Figure 70, A), two utilized flakes, and two core fragments, was collected. The greater bulk of the inventory consisted of historic domestic artifacts such as porcelain and ironstone dinnerware fragments and children's toys (e.g. Figure 70, C), stoneware jug and crock fragments (e.g. Figure 70, D-F), glass bottle parts, a lamp base segment, window glass, a milkglass button, a metal suspender

catch and buckle fragments, metal table service, cast iron kettle fragments, and other miscellaneous iron (refer to Table 10). These historic materials appear to represent the gamut of Euro-American occupation in the immediate vicinity of the site from the mid 1800s to the early part of the twentieth century. It is also assumed that there might be some relationship between the prehistoric materials found at 13BN106 and those recovered from 13BN40, located directly across a drainage to the north (refer to the preceding discussion of 13BN40). A summary of the site data was presented to the U.S. Army Corps of Engineers-Rock Island District in a roster of all sites known as of 1973 within the Saylorville project and that summary included a recommendation that additional surface collections be attempted at the site (Gradwohl and Osborn 1973b: 37).

The site was not checked again until 1975 during the intensive archaeological survey of Reconnaissance Unit 16 in the upper Saylorville project area. The former field, now heavily vegetated, was criss-crossed with rutted trails left by the constant recreational use of motorcycles and four-wheel-drive vehicles. Additional cultural materials were collected from these open areas: a utilized flake plus historic stoneware fragments, iron square-cut nails, and building brick and tile. The information known about the site up to that time was reported to the Corps with the recommendation that the site be tested because of the potential and realized adverse impacts to the site from recreational vehicle use there combined with intermittent inundation from Saylorville Lake (Gradwohl and Osborn 1976: 168-169). The site was checked again briefly in April of 1976 and one chunk of shatter and two waste flakes were recovered.

Statement of Research Objectives for Site 13BN106

Site 13BN106, formerly on the Priority II list of testing status, was investigated under this contract as a substitute for site 13BN35 after it was determined that the latter was not on property presently controlled by the Federal Government. Although the prehistoric surface finds at 13BN106 had been limited, it was felt that the site exhibited some potential for providing important information on the prehistory of the Des Moines Valley given its position on the landscape (a fan-covered terrace above the river), and its proximity to other sites of Priority I status (i.e. 13BN27, 13BN40, 13BN114, and 13BN123). Another strong consideration was the scheduled development of the site's location as a portion of the Old Bridge recreation satellite, part of the recreation master plan for the Saylorville Lake project.

The major thrust of archaeological tests at 13BN106 would be to establish whether or not primary deposits of one or more prehistoric cultural occupations indeed are present at the site and to determine the cultural affiliation and areal distribution of the artifacts and associated eco-factual remains. Relationships of the component(s) at 13BN106 to those

PREHISTORIC ARTIFACTS		Total	Material Collected Prior to Testing	Materials Collected During Testing	Surface (cultivated field and cycle trails)	Ap or Plowzone and Modern Slopewash	A12b soil horizon -- buried surface of alluvial fan	IIIB2 soil horizon -- Paleosol 1	IIIAb soil horizon -- Feature 1 associated with Paleosol 2
<u>Ceramics</u>									
Undecorated or cord marked grit tempered vessel fragments	17	-	17	-	4	12	1	-	-
<u>Chipped Stone</u>									
Small plain triangular point fragment	1	-	1	1	-	-	-	-	-
Side notched point fragment	1	1	-	1	-	-	-	-	-
Thin bifaces	2	1	1	1	1	-	-	-	-
Retouched flake	1	-	1	1	-	-	-	-	-
Utilized flakes	2	2	-	2	-	-	-	-	-
<u>Chipped Stone Source & Waste Material</u>									
Cores	2	2	-	2	-	-	-	-	-
Shatter chunks	2	1	1	1	-	-	-	1	-
Waste flakes	10	2	8	5	1	3	1	-	-
<u>Ground Stone</u>									
Hammerstone	1	1	-	1	-	-	-	-	-
<u>Unworked Stone Source Material</u>									
Hematite	1	-	1	1	-	-	-	-	-
HISTORIC ARTIFACTS									
<u>Ceramics</u>									
Porcelain & ironstone vessel fragments	271	269	2	269	2	-	-	-	-
Porcelain toys & knickknacks	4	4	-	4	-	-	-	-	-
Stoneware vessel fragments	830	820	10	824	6	-	-	-	-
Tile & red brick	4	3	1	3	1	-	-	-	-
<u>Glass</u>									
Clear, green, amber, & milkglass container fragments	90	86	4	86	4	-	-	-	-
Clear pressed or molded glass fragments	3	3	-	3	-	-	-	-	-
Clear window glass fragments	30	30	-	30	-	-	-	-	-
Milkglass button	1	1	-	1	-	-	-	-	-
Milkglass preserve jar lid liner	1	1	-	1	-	-	-	-	-
<u>Metal</u>									
Iron cut nails	8	7	1	7	1	-	-	-	-
Miscellaneous iron (including tools, kettle fragments, buckles, hinge, washer, bolt, tableware, cast & sheet iron fragments)	41	35	6	35	6	-	-	-	-
Zinc jar lid & sheet metal	2	2	-	2	-	-	-	-	-
Copper suspender catch	1	1	-	1	-	-	-	-	-
<u>Bone</u>									
Saw-cut bone (from cuts of meat)	11	2	9	2	9	-	-	-	-
<u>Mineral</u>									
Coal chunks	11	-	11	-	11	-	-	-	-
ECOLOGICAL MATERIALS									
Mammal bone & teeth fragments (bovid and deer)	4	1	3	1	1	1	1	1	-
Bird bone	1	-	1	-	-	-	-	1	-
Unidentifiable bone fragments	11	-	11	-	5	1	3	2	-
Freshwater mussel shells and shell fragments	55	55	-	55	-	-	-	-	-
Nutshells (including black walnut)	3	-	3	-	-	-	-	3	-
Wood charcoal samples	7	-	7	-	3	-	-	2	2
Wood and/or bark	5	-	5	-	-	-	-	5	5
	1434	1330	104	1340	55	17	13	9*	

<u>Retouched Flakes</u>	1	-	1	1	-	-	-	-
Utilized flakes	2	2	-	2	-	-	-	-
<u>Chipped Stone Source & Waste Material</u>								
Cores	2	2	-	2	-	-	-	-
Shatter chunks	2	1	1	1	-	-	1	-
Waste flakes	10	2	8	5	1	3	1	-
<u>Ground Stone</u>								
Hammerstone	1	1	-	1	-	-	-	-
<u>Unworked Stone Source Material</u>								
Hematite	1	-	1	1	-	-	-	-
<u>HISTORIC ARTIFACTS</u>								
<u>Ceramics</u>								
Porcelain & ironstone vessel fragments	271	269	2	269	2	-	-	-
Porcelain toys & knickknacks	4	4	-	4	-	-	-	-
Stoneware vessel fragments	830	820	10	824	6	-	-	-
Tile & red brick	4	3	1	3	1	-	-	-
<u>Glass</u>								
Clear, green, amber, & milkglass container fragments	90	86	4	86	4	-	-	-
Clear pressed or molded glass fragments	3	3	-	3	-	-	-	-
Clear window glass fragments	30	30	-	30	-	-	-	-
Milkglass button	1	1	-	1	-	-	-	-
Milkglass preserve jar lid liner	1	1	-	1	-	-	-	-
<u>Metal</u>								
Iron cut nails	8	7	1	7	1	-	-	-
Miscellaneous iron (including tools, kettle fragments, buckles, hinge, washer, bolt, tableware, cast & sheet iron fragments)	41	35	6	35	6	-	-	-
Zinc jar lid & sheet metal	2	2	-	2	-	-	-	-
Copper suspender catch	1	1	-	1	-	-	-	-
<u>Bone</u>								
Saw-cut bone (from cuts of meat)	11	2	9	2	9	-	-	-
<u>Mineral</u>								
Coal chunks	11	-	11	-	11	-	-	-
<u>ECOLOGICAL MATERIALS</u>								
Mammal bone & teeth fragments (bovid and deer)	4	1	3	1	1	1	1	-
Bird bone	1	-	1	-	-	-	1	-
Unidentifiable bone fragments	11	-	11	-	5	1	3	2
Freshwater mussel shells and shell fragments	55	55	-	55	-	-	-	-
Nutshells (including black walnut)	3	-	3	-	-	-	3	-
Wood charcoal samples	7	-	7	-	3	-	2	2
Wood and/or bark	5	-	5	-	-	-	-	5
	1434	1330	104	1340	55	17	13	9*

*Does not include hackberry seeds, snail shells, small bones, etc. found by flotation.

Table 10. Tabular Summary of Archaeological Materials Recovered from Site 13BN106. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.

present in the neighboring sites, particularly 13BN40, would be ascertained if possible, and if links are found then hypotheses regarding settlement patterns of specific cultural groups sharing the same material culture at a given time in prehistory might be tested. In particular it was hoped that components of Late Woodland and/or Great Oasis and of Middle Woodland cultural affiliations would be isolated here such that data would be gathered to answer specific research questions -- questions regarding the potentially contemporary alliance of Great Oasis to Late Woodland manifestations, both within local sites and also within the broader spatial domain of sites found between the Mississippi and Missouri Rivers. Since Middle Woodland components of the Havana tradition are known from several nearby sites (among which are 13BN27, 13BN30, 13BN38, 13BN123, and 13BN182), the research question which addresses the nature of local interaction systems during the Middle Woodland period could be explored using the potential comparative data from 13BN106. Although not treated within the posed research questions for the Saylorville project area, the historic Euro-American settlement of this locale from the mid 1800s to the last decade is reflected in the material remains from the site's surface. A objective of tests conducted at 13BN106 would be to collect data which would elucidate this period of cultural occupation.

Statement of Methodology for Site 13BN106

Because substitution of 13BN106 for 13BN35 was not made until after the testing program was well underway, the procuring of soil cores at 13BN106 was completed on 9 June 1981, and decisions were made in the field as to where trenches and test squares would be established the following day. A transect of six 2-inch (5 cm.) diameter soil cores taken with a truck-mounted hydraulic probe was made from the footslope bench southwest across a low floodplain terrace and onto the floodplain proper (refer to Figure 67). These were spaced at intervals of 75 to 140 ft. (25 to 46 m.) apart, avoiding small trees, volunteer shrubs, and obvious areas of recent disturbance. Most of the probes were extended to depths up to 28 ft. (854 cm.) on the chance that very deeply buried surfaces might be present. Two additional probes were placed to the north of the main transect as a control when suspected buried soil surfaces were encountered in Core #3. It was determined that 13BN106 is located on the same terrace feature as 13BN40 and the two site areas are now separated only by a relatively modern drainageway and former roadbed. Analysis of the cores by soil scientist Donald Wysocki showed that the potential for locating buried cultural deposits at 13BN106 was greatest in the alluvial fan covering the bench and back portion of the low terrace, both areas of which had also been covered by some recent slopewash.

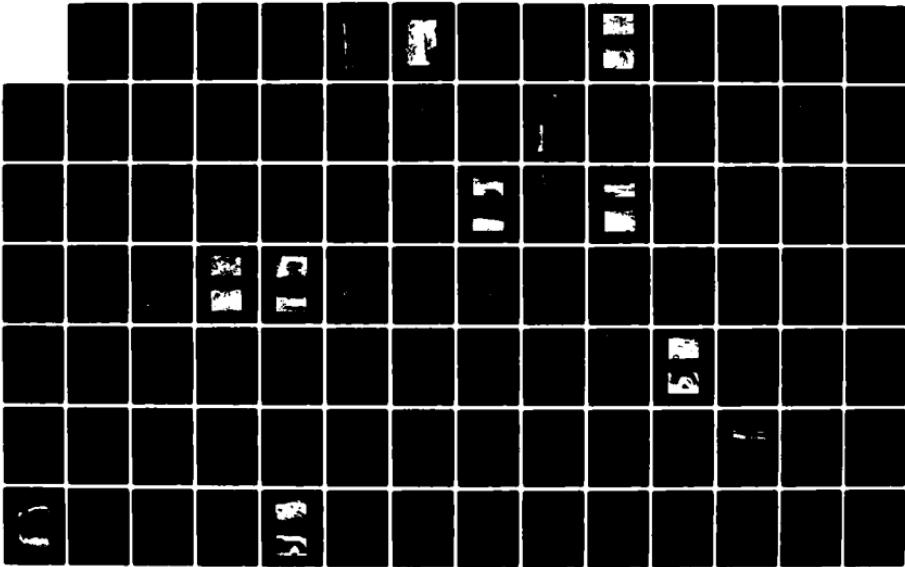
On this basis an alignment of three interrupted backhoe trenches was placed along the probing transect to open up broad segments of vertical profile for examination (refer to Figure 68). Trench #1 was 20 ft. (6.6 m.) long, Trench #2 was 30 ft. (9.8 m.) long, and Trench #3 was 25 ft.

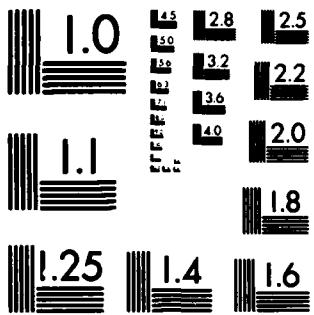
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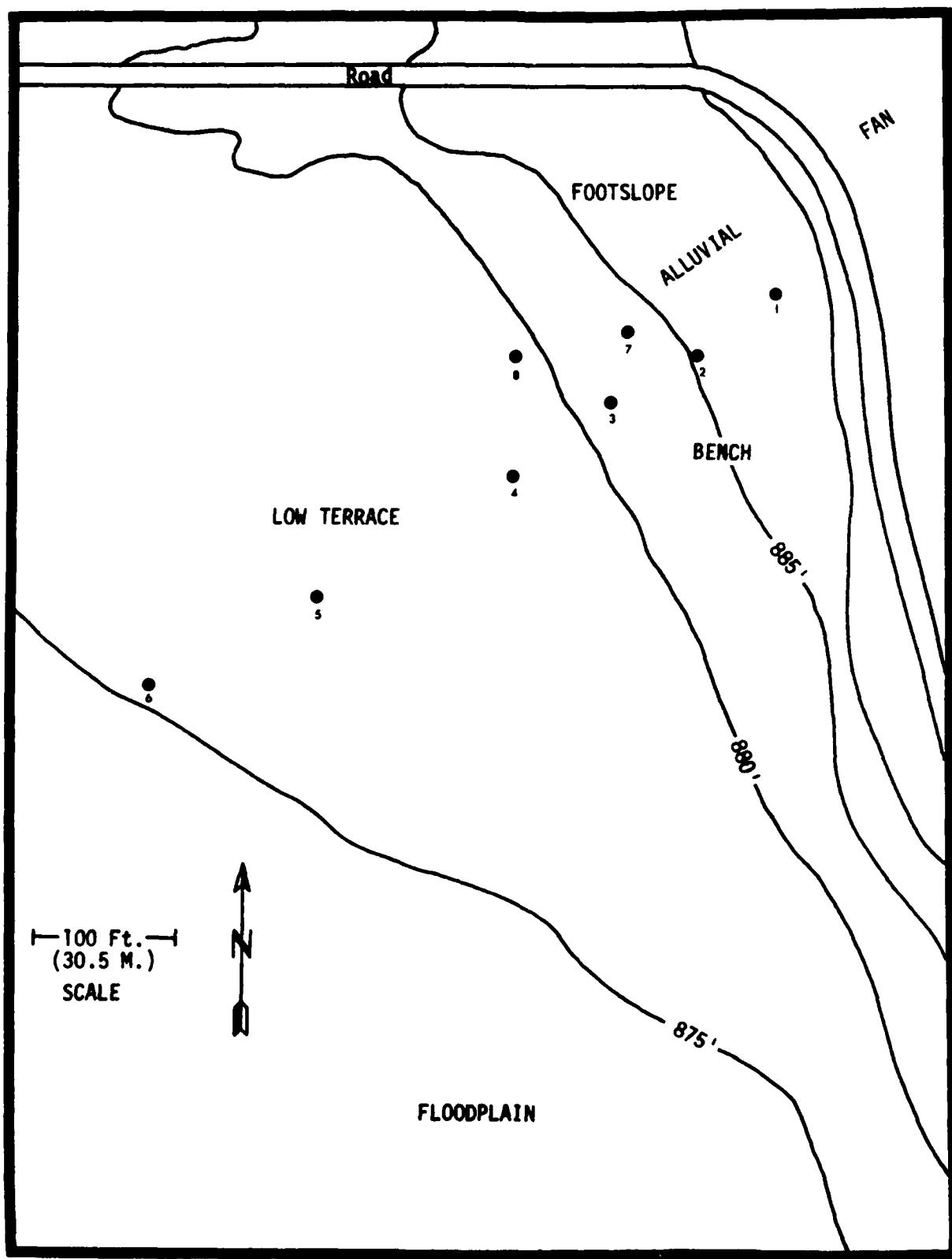


Figure 67. General Geomorphology and Placement of Soil Probes at Site 13BN106

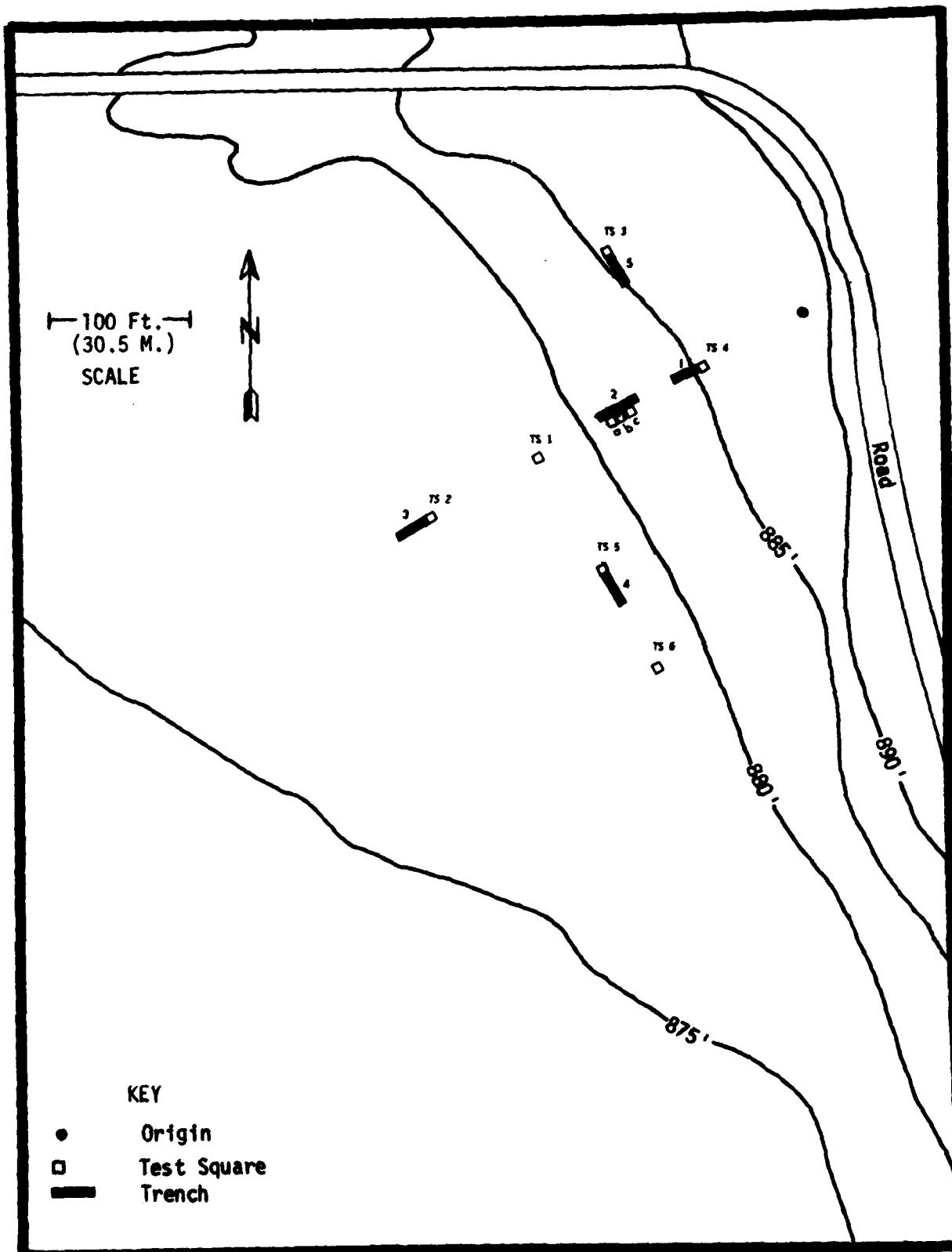


Figure 68. Placement of Test Trenches and Test Squares at Site 13BN106

(8.2 m.) long. Each trench was 2 ft. (61 m.) wide with vertical extents of 5.2 ft. (159 m.) for Trench #1, 6.8 ft. (207 cm.) for Trench #2, and 3.3 ft. (101 cm.) for Trench #3. The profile in Trench #1, which sampled the alluvial fan overlying the bench formed of pre-Illinoian glacial till, shows an unconformity at a depth of 3.3 ft. (101 cm.) on top of which is a developed soil profile of alluvial deposits. Recent slopewash materials which had moved downslope during the historic period (refer to the preceding discussion of slopewash at 13BN40) have been incorporated into the plowzone at this position.

Trench #2, on the back portion of the riverine terrace, revealed a more complex profile (refer to Figure 69 and Appendix C). Here three buried soil surfaces are apparent. The first is the most recent surface of the alluvial fan above which slopewash has accumulated since the mid nineteenth century. Below that are two successive paleosols which show as very irregular soil horizons within alluvial deposits originating from stream deposition. A sandy lens near the surface of the lowest of these developed soils (Paleosol 2) at an average depth of 4.6 ft. (140 cm.) below the ground surface was found to contain wood charcoal, some ash, a large number of hackberry seeds and seed coats, land snail shells, and small rodent bones and teeth. A small exploratory cut with a hand trowel was made into this deposit plus the overlying sands and gravels to determine its vertical and horizontal dimensions in the trench wall (refer to Plate 17). The deposit, designated Feature 1, was found to have a vertical thickness of 0.2 ft. (6 cm.) with a maximum horizontal extent into the wall of 0.6 ft. (18 cm.). Undoubtedly, part of the feature remnant was excavated from the wall and all available fill was bagged for water flotation treatment in the laboratory. A fragment of unidentified bone was noted within the Paleosol 2 stratum just outside of the feature.

Trench #3 was also located on the low terrace formed by stream alluvium and covered over by alluvial fan deposits. Here, again, slopewash materials from the historic period were found to be confined entirely within the plowzone and are more finely sorted than those closer to the footslope. Beginning at the plowzone contact was the top of the developed soil profile in the fan, below which, at a depth of 2.4 ft. (73 cm.) was the surface of the riverine terrace.

Two more backhoe trenches were excavated, one to the north and other to the south of the main transect line. Trench #4, like Trenches #2 and 3, was located on the low terrace/alluvial fan but oriented parallel to the footslope which lay to the north and east (see Figure 67 and Figure 68). This trench was 25 ft. (8.2 m.) in length and 4.0 ft. (122 cm.) deep and exhibited a vertical soil column very similar to that found in Trench #3. Trench #5 was placed on the footslope itself over the bench covered by

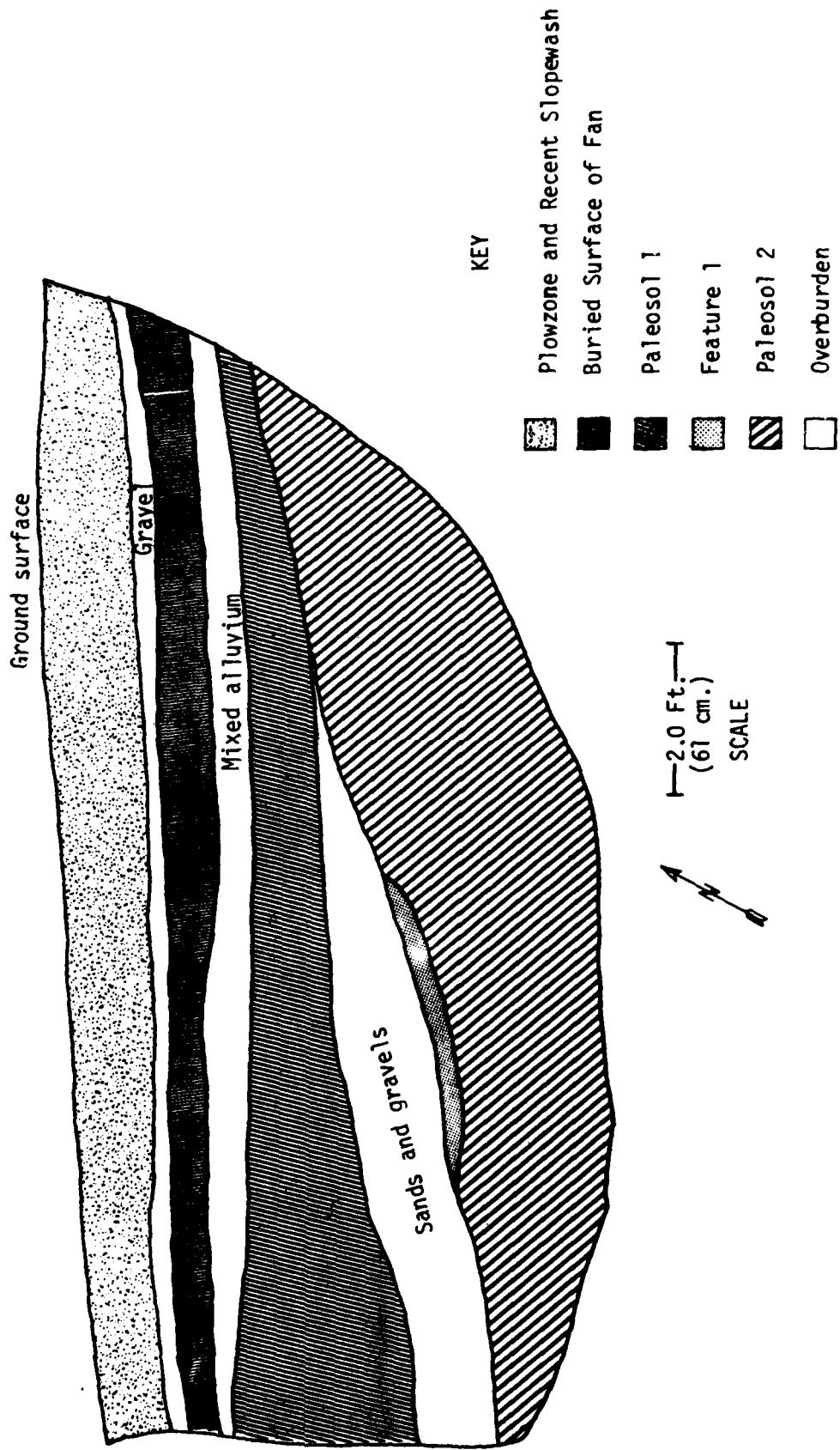


Figure 69. Generalized Vertical Soil Profile within Trench #2 at 13BN106. View is a portion of the northwest wall in the area of Feature 1, a sandy lens containing wood charcoal, hackberry seeds, very small rodent bones and teeth, and land snail shells near the top of Paleosol 2.



Plate 17. The Northwest Wall of Trench #2 at Site 13BN106, Showing the Soils Exposed in Vertical Profile and the Exploratory Trench Dug into Feature 1. The feature is a sandy lens containing charcoal, hackberry seeds, land snail shells, and small rodent bones. View is to the north northwest

thick alluvial deposits in the area north of Trenches #1 and 2. This trench was 25 ft. (8.2 m.) in length and 4.2 ft. (128 cm.) deep. Here was found a thick cumulic profile of alluvial sideslope materials to the base of the trench with modern slopewash in the uppermost 1.0 ft. (30 cm.).

Although the trench profiles showed that several buried surfaces -- including the alluvial fan surface plus two paleosol surfaces within the terrace sediments -- could have been available for human occupation at the site, no possible cultural remains, other than the charcoal and other materials found within the sand lens of Feature 1 and the bone fragment found just outside that feature in Paleosol 2, were recovered by trenching with the backhoe. Obviously, a method with more horizontal control was necessary, yet broad horizontal scrapes with the machine to remove plowzone and slopewash overburden over wide areas was not considered feasible because of the heavy ground cover. Therefore, several hand-dug test squares were established to effect a method of cluster sampling for artifactual and ecofactual remains.

These test units were 5 ft. (1.5 m.) square and all of the fill removed was sifted through 1/2-inch mesh hardware cloth screens during the course of testing. Test Square #1, 5, and 6 were placed just off the footslope and above terrace deposits (refer to Figure 68). Modern slopewash, often gravelly, was found to be deep in this position and extended below the surface to depths between 1.3 and 1.6 ft. (40-49 cm.). Within this material in Test Square #1 was found one historic salt glazed stoneware vessel fragment. Immediately below this level in Test Square #1, in the uppermost portion of the alluvial fan deposits between 1.6 and 2.0 ft. (49-61 cm.), was recovered one unidentified bone fragment. The plowzone and modern slopewash level of Test Square #5 produced one unidentified bone fragment, nine saw-cut bone fragments, one piece of brick, four chunks of coal, and two samples of charcoal. No further materials were found below in the alluvial fan. Within Test Square #6, the plowzone/slopewash level contained one historic metal washer, a metapodial fragment identified as cow or bison, and two unidentified bone fragments. Below this level of modern disturbance in Test Square #6, and within alluvial fan deposits between 1.7 and 2.0 ft. (52-61 cm.), were recovered one waste flake and a vertebral segment, possibly from an animal the size of a white-tailed deer.

Test Square #2 was placed further out on the terrace at the northeast end of Trench #3. The plowzone here, which included finely-sorted slopewash materials, ended at 0.8 ft. (24 cm.) below the surface and produced two unidentified pieces of bone, a sample of wood charcoal, plus two historic glass bottle fragments, and a piece of thin metal wire. The square was dug through the underlying alluvial fan deposits to the C soil horizon above the terrace surface, but no further materials were recovered.

Test Squares #3 and 4 were situated on the footslope comprised of the alluvial fan overlying the bench near Trenches #5 and 1, respectively. Here the slopewash-filled plowzone was full of pebbles. Four grit tempered body sherds, two of which are cord roughened, and a thin biface fragment (Figure 70, B), plus historic materials including one ironstone china sherd, one yellow earthenware fragment, four salt glazed stoneware vessel fragments, two pieces of bottle glass, a cut nail, and a square iron nut all came from this zone in Test Square #3. The same zone in Test Square #4 produced only historic materials including one ironstone rim fragment with blue underglaze decoration, a section of iron bracing plus two thoroughly-rusted iron fragments, and seven chunks of coal. Immediately below this zone of disturbance, which ended at depths varying between 0.9 and 1.2 ft. (27-37 cm.) in both squares, lay the surface of the alluvial fan. Within the upper portion of these fan deposits in Test Square #3 was recovered one grit tempered cord roughened vessel neck juncture, eleven small grit tempered body sherds, most of which are cord roughened, and two waste flakes to a depth of 1.4 ft. (43 cm.). A piece of unidentified bone was found slightly deeper at 1.5 ft. (46 cm.). However, no cultural materials were located in the fan deposits in Test Square #4. Both squares were dug to terminal depths of 2.0 ft. (61 cm.).

To sample by controlled means the two buried paleosols within terrace sediments exposed in Trench #2, a set of three 5 ft. (1.5 m.) square test units, labelled A through C, was established adjacent to the south-eastern wall of that trench (refer to Figure 68 and Figure 69). Here the overburden of plowzone and modern slopewash, plus alluvial fan deposits, was quickly removed with the backhoe. Then each unit was dug by hand shovelling to systematically expose the paleosol surfaces in horizontal profile (refer to Plate 18). As a further check, all fill from the paleosol profiles was sifted through 1/2-mesh screens; the sand/gravel overburden between the two paleosols was not screened. Near the top of Paleosol 1 in Test Unit A were found a waste flake, a tooth segment identified as that of white-tailed deer, and a nut shell fragment. No materials were found within Paleosol 2 in Test Unit A. Test Unit B revealed one piece of chert shatter, two unidentified bone fragments, and a small sample of charcoal within Paleosol 1 and five wood or bark fragments at the top of Paleosol 2. Investigation of Test Unit C produced a small grit tempered cord roughened body sherd, a fragment of bird bone, and charred black walnut shell fragments within Paleosol 1. Limited charcoal samples were gathered from the base of this paleosol as well as from the top of Paleosol 2. The contact between the two paleosols in this test unit is an erosion surface (refer to Figure 69), so the upper limit of Paleosol 2 had probably been eroded down to some degree to its present configuration. The only other material gathered during the investigation of Paleosol 2 within Test Unit C (see Plate 19) is an unidentified fragment of faceted bone.



Plate 18. Work in Progress in Test Units A, B, and C Adjacent to Trench #2, Exposing in Horizontal Profile the Buried Paleosol Surfaces Occurring in Terrace Sediments at Site 13BN106. View is to the west with the tree-lined channel of the Des Moines River in the background



Plate 19. Exploration by Stratigraphic Methods within Test Unit C of the Lowest Paleosol Exposed within Trench #2 at Site 13BN106. View is to the northwest

Because of the complexity of the soil sequences at site 13BN106, the field strategy for testing was kept flexible and was altered as needed during the course of field investigations. The probing and trenching had revealed a buried soil surface below that of the alluvial fan only in the vicinity of Trenches #2, 3, and 4. This soil surface corresponds to the top of the riverine terrace and is referred to here as Paleosol 1. Only in Trench #2 was a second, deeper surface -- Paleosol 2 -- shown to be present within the riverine sediments forming the terrace (refer to the discussion in Appendix C). The alluvial fan deposits were tested further in hand-dug test units (Test Squares 1 through 6) at several locations within the site; therefore, in the interest of time and effective utilization of personnel, the overlying alluvial fan deposits in Test Units A, B, and C were sacrificed to quickly reach the more deeply buried terrace soil surfaces visible in the wall of Trench #2.

Results of Testing at Site 13BN106

Although few distinctively diagnostic prehistoric cultural materials were recovered from 13BN106 as a result of archaeological testing (refer to Table 10), some significant data has been gathered from the site. This locus appears to have been occupied during at least two different and successive periods, one when the surface of the riverine terrace was exposed and a second after that terrace had been covered over by alluvial deposits originating on the sideslopes to the east. Peoples of Woodland cultural affiliation may be responsible for both occupations since very limited amounts of grit tempered cord roughened ceramics are present in both cultural horizons.

A third soil surface, more deeply buried than the other two and located within the stream-deposited terrace, would also have been available for human habitation. No unquestionably cultural artifacts have yet been found associated with this horizon, however, although one feature was designated there during testing. Feature 1 is recorded as a sandy lens-shaped deposit at the surface of Paleosol 2 within which wood charcoal, a quantity of hackberry seeds and seed hulls, land snail shells, and rodent teeth and bones were found. Water flotation of the feature fill, conducted with both high-density fraction and low-density fraction methods, produced still more charcoal, hackberry seeds, snail shells, and rodent bones, plus one very small chert flake. A fragment of unidentified bone was found in the trench wall just outside of the feature. Elsewhere in Paleosol 2, as exposed horizontally within the hand-dug test units, some wood bark, more charcoal, and a piece of unidentified bone was recovered from near the surface of the horizon. If this feature cannot be attributed to cultural causes, one explanation for its contents and presence might be that local burning upslope denuded part of the forested landscape, allowing rains to wash sand, charcoal, and other plant and animal materials downslope, some of which collected in a natural depression. Although the

potential is certainly demonstrated, more investigation will be needed to unequivocally determine the presence or absence of a cultural occupation at this horizon. Either way, the potential for gaining some significant data for ecological reconstruction of a given locale within the prehistoric period in the central Des Moines trench may make further exploration of this paleosol profitable.

The prehistoric artifact classes present from the site include grit tempered ceramics; chipped stone tools in the form of one notched projectile point segment (Figure 70, A), two thin biface fragments (one of which is shown here in Figure 70, B), plus flakes used for cutting or scraping; limited lithic source and waste material such as cores, chunks of shatter, and a few waste flakes; and ground stone represented by one worn granite hammerstone. The ceramics are all small body sherds with the exception of one slightly curved neck sherd. None bear any decoration and most have a surface treatment of cord roughening. Classes of plant remains include wood charcoal and charred seeds and nut shells -- some of which are identified as hackberry (Celtis reticula) and black walnut (Juglans nigra). Animal remains are present as bone fragments, tooth fragments, freshwater mussel shells, and land snail shells. Most of the bones and teeth are too broken up to be identified, although one large bone segment can be identified as the metapodial of Bos or Bison, another small fragment is bird bone, and one tooth segment is from a white-tailed deer (Odocoileus virginianus).

Historic materials are the most numerous from the site and reflect the residue from a domestic Euro-American dwelling, probably the earliest occupation of the farmhouse and outbuildings which were still in use south and east of 13BN106 when the site was first discovered in the 1960s. Cookware, table service, and storage containers of ironstone china and salt glazed stoneware are represented heavily in the inventory. There is strong evidence that some of the stoneware was produced locally, since the cobalt blue "cyclone" motif -- common among and distinctive to the wares produced at the Noah Creek Kiln, 13BN111 (Schulte 1974: 78-84), and at the Moingona Pottery Works, 13BN120, and the Flint Stone Pottery, 13BN132 (Schroeder 1979: 104, 109, 114-116), in the late 1860s and the 1870s -- was present on some of the pieces collected (see Figure 70, D-F). Children's toys are available in the pieces of a china toy teas service (one of which is shown in Figure 70, C), part of a china doll, and a china marble. Glass bottles and molded glass of all kinds, glass buttons, metal buckles, tin can fragments, iron kettle pieces, cut nails, bolts, brick, white tile fragments, and saw-cut bones comprise the miscellany of daily life in the late nineteenth century which is still in evidence at 13BN106. These items are, however, confined entirely to the plowzone and surface of the site.

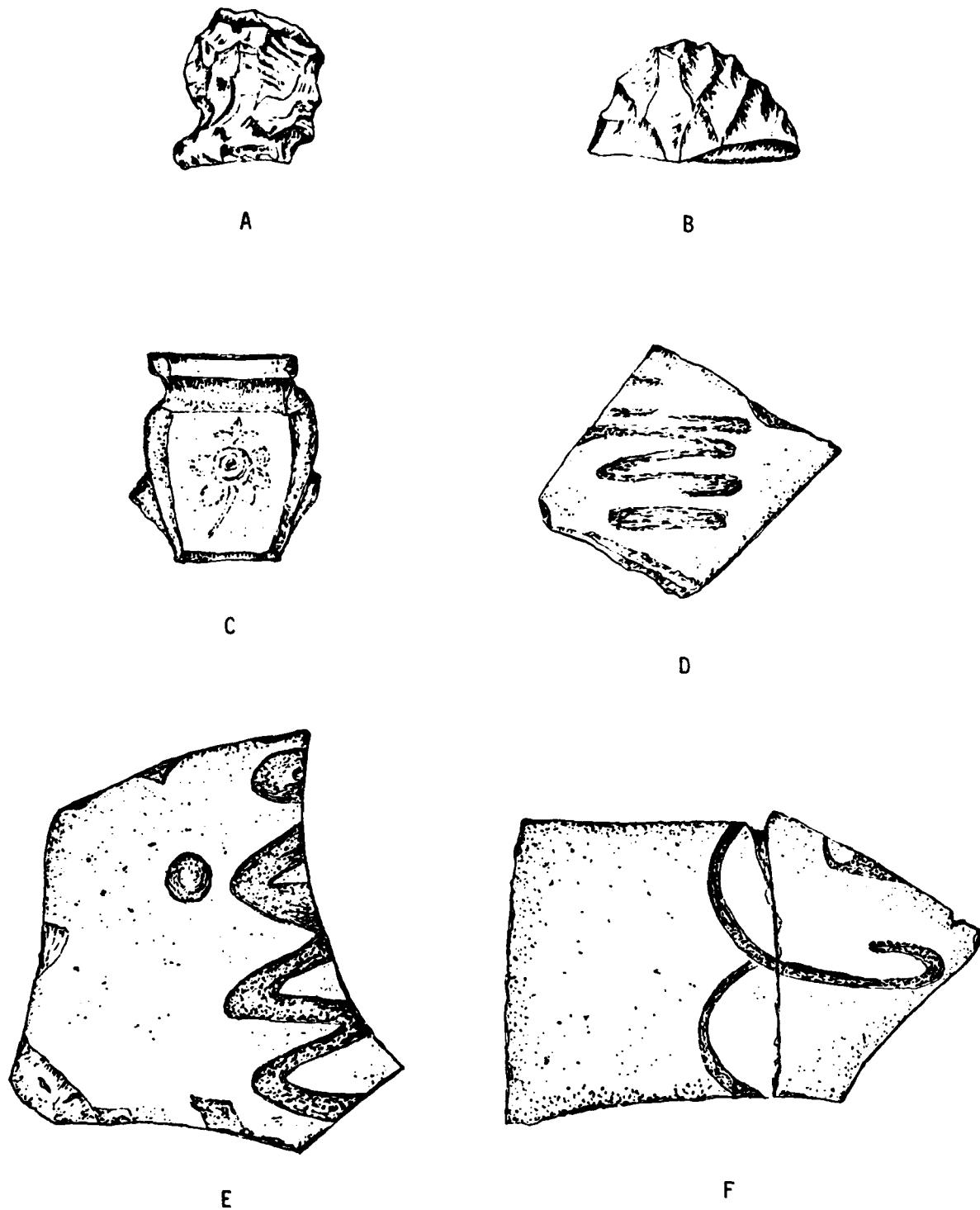


Figure 70. Selected Prehistoric and Historic Artifacts from 13BN106. (A) Chalcedony notched point base #599; (B) Thin biface fragment #673; (C) Toy ironstone teapot #1; (D-F) Salt glazed stoneware bodysherds with cobalt blue "cyclone" motif #496, 493, and 495, respectively. B is from the plowzone of Test Square #2; all the rest are from the surface. Actual size

In terms of answering specific research questions posed in regard to the prehistory of the central Des Moines Valley, site 13BN106 shows much better potential than does site 13BN40 immediately to the north because more than one buried cultural surface has been demonstrated to be present at the former but not at the latter. However, present diagnostic materials from either site are scant. It is now felt that cultural deposits at 13BN106 are likely to be a continuation of those defined by testing at 13BN40, deposits artificially separated at present by a modern drainage and former access road. The distribution of cultural deposits on an areal basis at 13BN106 can be limited to the riverine terrace and to the footslope overlying the till bench on the basis of these tests. Certainly the present tests have shown the potential for the preservation of eco-factual materials -- including bone, charred wood, nutshells, and land snail shells -- in deeply-buried positions at the site. Such ecofacts would be essential in answering the research question regarding reconstruction of the biome in which prehistoric populations lived.

Impacts of the Saylorville Lake Project on Site 13BN106

Like archaeological site 13BN40, site 13BN106 lies within the upper reaches of the Saylorville Lake flood control pool and will be intermittently inundated whenever the lake rises beyond 875 feet elevation during flood storage. Wave action on the shoreline of the flood pool is likely to destroy at least the uppermost of the buried cultural horizons present at the site.

An equally devastating impact to the cultural resources at 13BN106 is the present uncontrolled use of the area for motorcycle rallies and hill-climbing by four-wheel-drive vehicles (refer to the preceding discussion of impacts to 13BN40). Destruction of vegetation along the trails which have been created across both sites has accelerated erosion and has cut down in some areas into primary cultural deposits. Original plans drawn up by the U.S. Army Corps of Engineers had scheduled the area immediately upslope from 13BN106 as part of a controlled motorized vehicle use area (refer to Plate IX, Saylorville Lake Recreation Master Plan 6B, Rock Island District, U.S. Army Corps of Engineers, 1973). Even if and when this facility is built, it is likely that recreational vehicles will continue to be used on the lower terrace as well.

Recommendations for Further Work at Site 13BN106

Further archaeological investigation is warranted for site 13BN106 in light of its potential for providing both cultural and ecological data from successively-buried soil horizons. Further efforts should be concentrated in exploring the lowest of the defined paleosols in the vicinity of Trench #2, an endeavor which will require the removal of at least 4 ft. (122 cm.) of overburden, probably with power machinery. Potential for exploring the cultural deposits on the terrace surface (Paleosol 1) and the surface of the alluvial fan is available over a wider portion of the site, especially to the south and east of the initial test units.

13BN114

Environmental Context of Site 13BN114

Site 13BN114 is located on a low sandy riverine terrace and adjacent floodplain above the right bank of the Des Moines River in Boone County, Iowa (Figure A-24). This locus is immediately across the river from the mouth of Stringer Creek where that tributary enters the Des Moines (Figure A-25). The site's position lies at 875 to 890 feet above mean sea level and covers an area of 5 to 8 acres (2 to 3 hectares). Boundaries for the site include the Des Moines River channel on the north and east, a quarried area reclaimed by secondary forest on the south, and the field fenceline on the west. This area has been under cultivation within the historic period and is in row crop at the present time. Quarrying for gravel has occurred nearby in the recent past.

The soils on which the site occurs are mapped as Dickman fine sandy loam, 1-5% slopes and 5-9% slopes, and Coland clay loam, 0-2% slopes. Eolian sand would be the major constituent of the former, while the latter is comprised largely of loamy alluvium (USDA Soil Conservation Service 1981: 12, 16, 60-61 and Sheet 39). Upon physical observation in the field, soil scientist Donald Wysocki determined that the soils present at the site are probably more closely allied to the Hanlon soil series, soils which are formed by natural riverine levees and adjacent bottomlands (refer to USDA Soil Conservation Service 1981: 63). The terrace soil is well drained while that on the lowlands is not as well drained.

Previous Investigations at Site 13BN114

Site 13BN114 was located and designated by personnel from the Iowa State University Archaeological Laboratory on 11 June 1968 during survey investigations conducted under the auspices of a contract with the National Park Service for archaeological work in Saylorville Reservoir. At that time the field in which the site was found was being cultivated for row crops and surveying conditions were optimal. In addition to the small side notched and small plain triangular points and other chipped stone tool fragments, lithic debitage, burned and unburned bone, and freshwater mussel shell, there was a wide variety of prehistoric ceramics at the site. These included the grit tempered cord roughened and smoothed sherds generally characteristic of Woodland assemblages as well as cord impressed, tool impressed, and incised necks and rims specifically suggestive

of Late Woodland occupations. One Great Oasis incised rim was also present. Also found were two pieces of shell tempered pottery: one is a rim with a cord roughened shoulder and the other is a smoothed body sherd with trailing. These shell tempered ceramics appeared to closely resemble Oneota materials known for other segments of the Des Moines Valley but not yet defined within the Saylorville region. Historic artifacts, including ceramic pipe fragments, were also collected. In further attempts to locate more diagnostic materials from the site, surface surveys were conducted there in June of 1969 and 1970 and small amounts of cultural material were added to the inventory. The data known for the site was summarized in 1973 for the U.S. Army Corps of Engineers-Rock Island District in a roster of sites inventoried within the Saylorville Lake project (refer to Gradwohl and Osborn 1973b: 39).

No further visits were made by Iowa State University personnel to 13BN114 until 1975 during the intensive archaeological survey of Reconnaissance Unit 17, part of a reconnaissance program contracted by the Corps and comprising the entire upper portion of the Saylorville Lake project. Again, an interesting array of pottery was recovered including shell tempered pieces, one bearing a red slip; grit tempered single-cord impressed rims and necks; and a grit tempered sherd with burnished exterior, along with the standard grit and/or sand tempered cord roughened and smoothed sherds. Non-diagnostic chipped stone tools, a core fragment, shatter, waste flakes, and a sandstone abrader were also recovered at that time. Freshwater mussel shell was particularly prevalent along the upper terrace escarpment. These finds were reported to the Corps with the recommendation that the site be excavated due to the rather unique nature of the materials collected there (Gradwohl and Osborn 1976: 196-197).

Subsequent checks were made at the site between 1976 and 1980 to locate further diagnostic artifacts and to monitor tree-clearing activity along the margin of the Des Moines River and the effects of quarrying activity near the site. Diagnostic ceramics running the gamut from Late Woodland to probable Great Oasis to post-Woodland shell tempered wares and projectile points including side notched and small triangular side and basally-notched types continued to be present for collection during this period, along with other less diagnostic stone tools and prehistoric cultural debris.

Research Objectives at Site 13BN114

The cultural materials collected from the surface of site 13BN114 during and prior to 1980 present some interesting culture-historical questions in regard to the prehistoric occupation of the site. The diagnostic ceramics collected include those which suggest Late Woodland, and Great Oasis, and Oneota cultural affiliations. There are none of those characteristics present in these ceramics which would suggest earlier Woodland affinities. All of the projectile point styles available from the site through 1980

are of the small plain triangular and small notched triangular forms which would fit easily into either Late Woodland or Great Oasis chipped stone tool assemblages, and most would not be incongruous if found in Oneota contexts. The condition of freshwater mussel shells eroding onto the surface along the terrace escarpment at 13BN114 indicates that the acidity of the soil here is probably low enough for other faunal and plant materials, if present, to have been preserved in the cultural matrix.

The site, then, shows good potential for answering several of the specific research questions posed for reconstructing the prehistory of the central Des Moines Valley. The first basic objective would be to define the number and extent of individual cultural components present and in primary context at 13BN114. Then, building on that knowledge, some of the relationships between Late Woodland and Great Oasis cultural groups might be worked out, both in terms of contemporaneity and of shared material cultural ideas. The potential is present, also, to define some of the relationships of one or both of these cultural manifestations to the occurrence of Oneota material cultural traits as these are found in this portion of the valley.

Since horticulture is likely to have been practiced by all of these cultural groups to some degree, evidence for such technological/economic development would be a specific focus in the recovery of archaeological data from the site. Along with the evidence for the introduction of cultigens into the area, evidence of the plants and animals indigenous to this specific locale will be of service in reconstructing the environmental setting within which the prehistoric inhabitants of 13BN114 conducted their daily lives.

Statement of Methodology at Site 13BN114

Because the field in which site 13BN114 is located had been planted to corn and was not harvested until late in the fall of 1980, soil probing for the purpose of archaeological testing did not commence there until 3 November 1980. Three transects of soil probes were laid out at the site, one traversing the length of the brow of the terrace escarpment, and a second placed across this transect extending from the terrace surface out onto the floodplain toward the Des Moines River (refer to Figure 71). A third shorter transect of more closely spaced probes was placed through the terrace escarpment alone and perpendicular to the first transect. Nineteen soil-core probes, each 2 inches (5 cm.) in diameter, were made with a truck-mounted hydraulic probe, reaching up to depths of 12 ft. (366 cm.). The location of each probe was mapped using a transit and stadia. These probes were spaced apart at distances between 12 and 75 ft. (4 to 25 m.), as the situation dictated. This spacing is closer together than that originally proposed based on advice from the soil scientist, Thomas Bicki.

The rest of the testing at 13BN114 took place in late April and early May of 1981 and consisted initially of the placement of four backhoe trenches through various portions of the terrace (refer to Figure 72). The proposed strategy had called for only one such trench, but after the first had been

PREHISTORIC ARTIFACTS		Total	Materials Collected Prior to Testing	Materials Collected During Testing	Surface (cultivated field)	Ap or Plowzone and Unsifted Trench Fill	Paleosol 1 and Associated Cultural Zone (truncated by Ap in some positions)
<u>Ceramics</u>							
Decorated or smoothed shell tempered rim/body segments (Oneota?)	11	11	-	11	-	-	-
Great Oasis Incised or Great Oasis Plain rim/body segments	2	1	1	1	-	-	1
Decorated or smoothed grit tempered rim/body segments (Late Woodland)	30	25	5	27	1	2	
Undecorated or cord marked grit tempered vessel fragments (including 1 burnished sherd)	351	281	70	307	30	14	
<u>Chipped Stone</u>							
Medium-sized side notched point	1	-	1	1	-	-	-
Small triangular points with multiple notches	4	4	-	4	-	-	-
Small plain triangular points	3	3	-	3	-	-	-
End scrapers	2	2	-	2	-	-	-
Thin bifaces (including point segments)	8	8	-	8	-	-	-
Thick bifaces	2	2	-	2	-	-	-
Retouched flake/scaper	1	1	-	1	-	-	-
Retouched flakes	4	3	1	4	-	-	-
Utilized flakes	24	23	1	24	-	-	-
<u>Chipped Stone Source & Waste Material</u>							
Cores and core fragments	9	9	-	9	-	-	-
Shatter chunks	24	17	7	19	3	2	
Waste flakes	83	80	3	82	-	1	
<u>Ground Stone</u>							
Sandstone abrader	1	1	-	1	-	-	-
Worked hematite	1	1	-	1	-	-	-
<u>Unworked Stone Source Material</u>							
Coarse sandstone chunks (1 is burned)	3	2	1	3	-	-	-
Smooth basalt	1	-	1	-	1	-	-
HISTORIC ARTIFACTS							
<u>Ceramics</u>							
Ironstone vessel fragments	3	3	-	3	-	-	-
Stoneware vessel fragment	1	1	-	1	-	-	-
Kaolin pipe fragments	2	2	-	2	-	-	-
Tile	2	2	-	2	-	-	-
<u>Glass</u>							
Green glass container fragment	1	1	-	1	-	-	-
Clear window glass fragments	3	3	-	3	-	-	-
<u>Metal</u>							
Iron axe blade	1	1	-	1	-	-	-
Lead bullet	1	1	-	1	-	-	-
Iron fork (tableware)	1	-	1	-	1	-	-

vessel fragments (including 1 burnished sherd)	351	281	70	307	30	14
<u>Chipped Stone</u>						
Medium-sized side notched point	1	-	1	1	-	-
Small triangular points with multiple notches	4	4	-	4	-	-
Small plain triangular points	3	3	-	3	-	-
End scrapers	2	2	-	2	-	-
Thin bifaces (including point segments)	8	8	-	8	-	-
Thick bifaces	2	2	-	2	-	-
Retouched flake/scrapers	1	1	-	1	-	-
Retouched flakes	4	3	1	4	-	-
Utilized flakes	24	23	1	24	-	-
<u>Chipped Stone Source & Waste Material</u>						
Cores and core fragments	9	9	-	9	-	-
Shatter chunks	24	17	7	19	3	2
Waste flakes	83	80	3	82	-	1
<u>Ground Stone</u>						
Sandstone abrader	1	1	-	1	-	-
Worked hematite	1	1	-	1	-	-
<u>Unworked Stone Source Material</u>						
Coarse sandstone chunks (1 is burned)	3	2	1	3	-	-
Smooth basalt	1	-	1	-	1	-
HISTORIC ARTIFACTS						
<u>Ceramics</u>						
Ironstone vessel fragments	3	3	-	3	-	-
Stoneware vessel fragment	1	1	-	1	-	-
Kaolin pipe fragments	2	2	-	2	-	-
Tile	2	2	-	2	-	-
<u>Glass</u>						
Green glass container fragment	1	1	-	1	-	-
Clear window glass fragments	3	3	-	3	-	-
<u>Metal</u>						
Iron axe blade	1	1	-	1	-	-
Lead bullet	1	1	-	1	-	-
Iron fork (tableware)	1	-	1	-	1	-
ECOLOGICAL MATERIALS						
Mammal bone & teeth fragments (including cow, pig, rodent, pocket gopher, dog, and deer)	22	15	7	18	-	4
Calcined bone fragments	18	15	3	18	-	-
Unidentifiable bone fragments	46	38	8	38	-	8
Freshwater mussel shell fragments	315	307	8	307	1	7
Land snail shells	9	9	-	9	-	-
Charred tree root	1	-	1	-	-	1
Wood charcoal samples	2	-	2	-	-	2
	993	872	121	914	37	42

Table 11. Tabular Summary of Archaeological Materials Recovered from Site 13BN114. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.

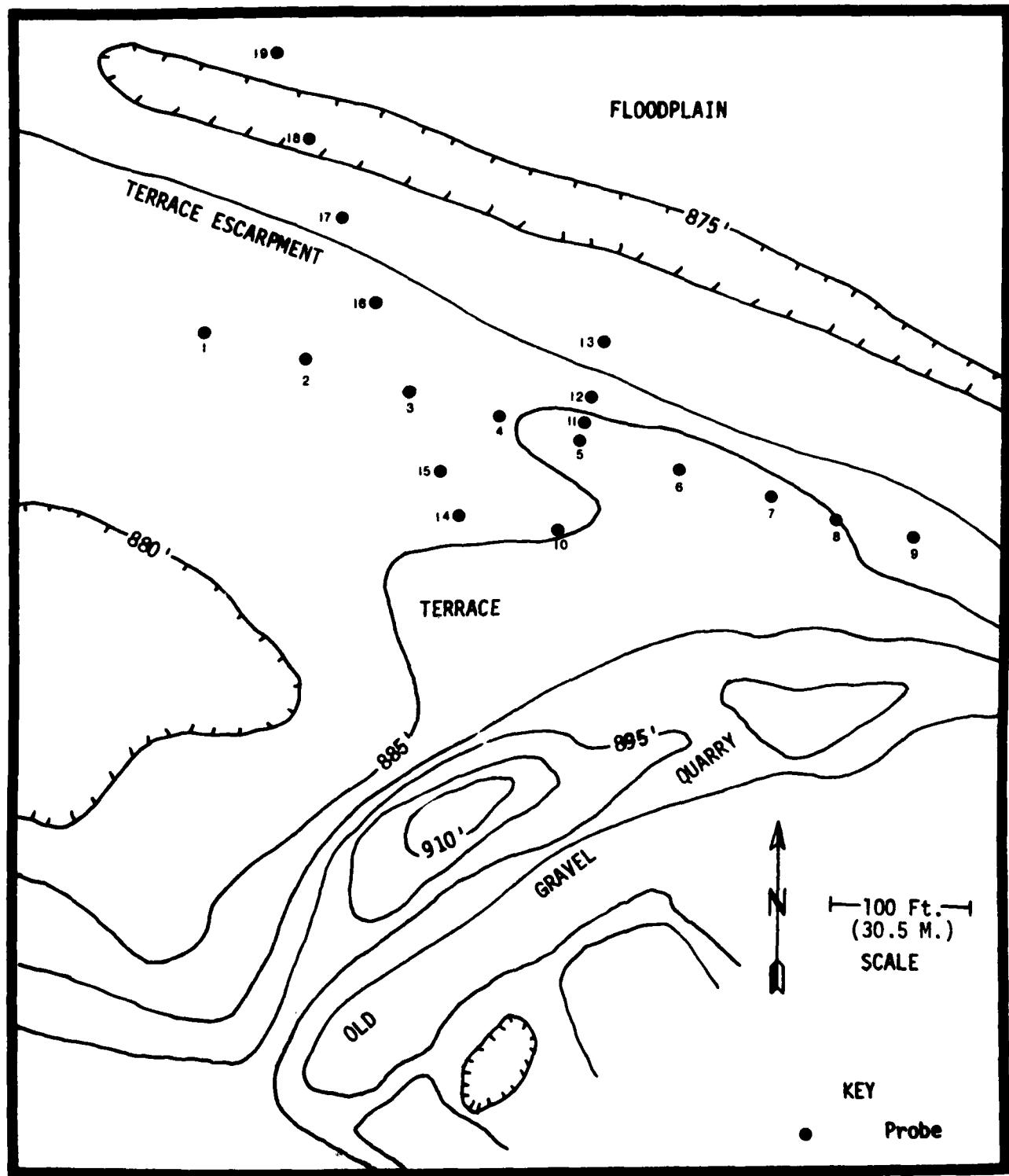


Figure 71. General Geomorphology and Placement of Soil Probes at Site 13BN114

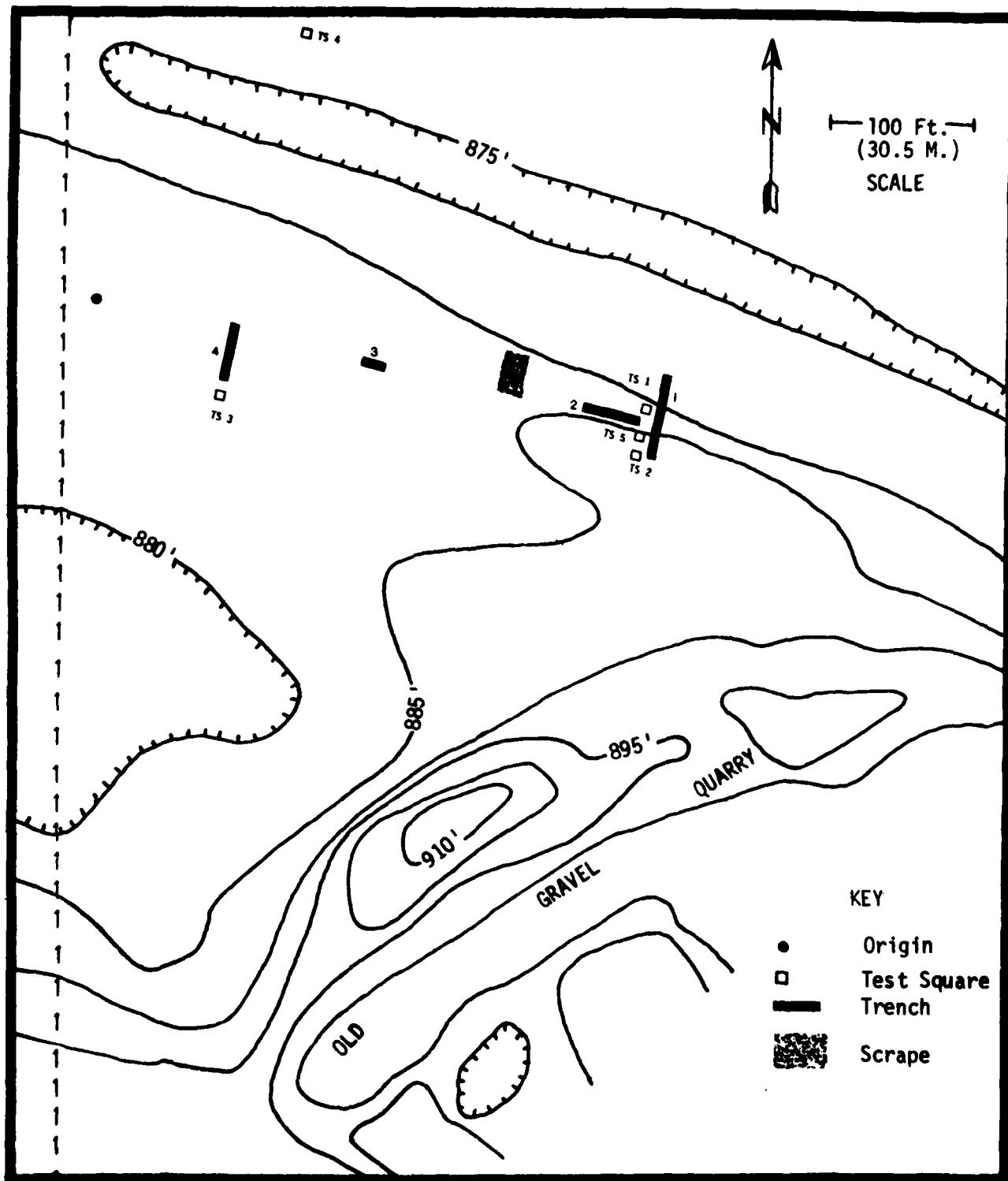


Figure 72. Placement of Test Trenches, Horizontal Scrape, and Test Squares at Site 13BN114

dug, it was the decision of the archaeologists together with the soil scientist to dig additional trenches to further clarify the stratigraphy at the site. All trenches were 2 ft. (61 cm.) wide. Trench #1 was placed through and perpendicular to the terrace escarpment within the area of the site from which a large number of the surface artifacts had been collected. This trench was 63 ft. (21 m.) long and was carried to varying depths up to 6 ft. (183 cm.). Within the vertical profile of this trench was defined a buried soil surface just below the plowzone; this buried surface becomes exposed on the present ground surface as it outcrops in the terrace escarpment. This surface, referred to as Paleosol 1, was found to be intact toward the back of the terrace, but as it nears the escarpment the upper portion of the soil horizon appears to have been truncated slightly by the action of the plow (refer to Figure 73). If Paleosol 1 corresponds to one of the cultural zones present at 13BN114, this observation could explain the reason so many artifacts appear at the surface right along the top of the terrace escarpment and on the front surface of the terrace. During the trenching of Trench #1 one grit tempered cord roughened body sherd was recovered from the plowzone and one freshwater mussel shell was found in the unsifted fill after it had been piled beside the trench.

Within Trench #1 immediately below Paleosol 1 was noted a second thicker solum (Paleosol 2) which is continuous from the back of the terrace to the floodplain. On the floodplain the top of this soil column directly underlies the plowzone and, along with the products of modern stream alluviation, makes up the present plowzone fill. A third buried soil development zone (Paleosol 3) is found to directly underlie Paleosol 2 within the floodplain deposits at depths starting at 3.8 ft. (116 cm.) or less below the present ground surface. Extrapolating for the rest of the site area from the soil core information, Paleosol 3 seems to occur only on the floodplain and underlies the terrace deposits little if at all. The definition of the three soil surfaces as seen in vertical profile is quite distinct at this site.

Trench #2 was placed on the terrace escarpment just 10 ft. (3 m.) west of and perpendicular to Trench #1. This trench was 35 ft. long and was taken to a final depth of 4 ft. (122 cm.). Here the soil profile was consistent with that defined in Trench #1 for this position on the land surface: plowzone overlying Paleosol 1, which in turn directly overlies Paleosol 2. A charred tree root was found at the base of Paleosol 1 during trenching. Trench #3 was placed in the same alignment as Trench #2 but 150 ft. (49 m.) to the west. This trench was shorter -- 12 ft. (4 m.) in length -- and was taken to a depth of 5 ft. (152 cm.). Again, the vertical profile information exposed paralleled that uncovered to the east. Trench #4 was located still further west, 85 ft. (28 m.) from Trench #3, and was oriented on the terrace surface perpendicularly to the terrace edge to the north. This trench was 30 ft. (9.8 m.) long and varied in depth from 4 to 5.5 ft. (122-168 cm.). Here, too, Paleosol 1 was evident just below the plowzone to a depth of 2.2 ft. (67 cm.), at which point Paleosol 2 begins.

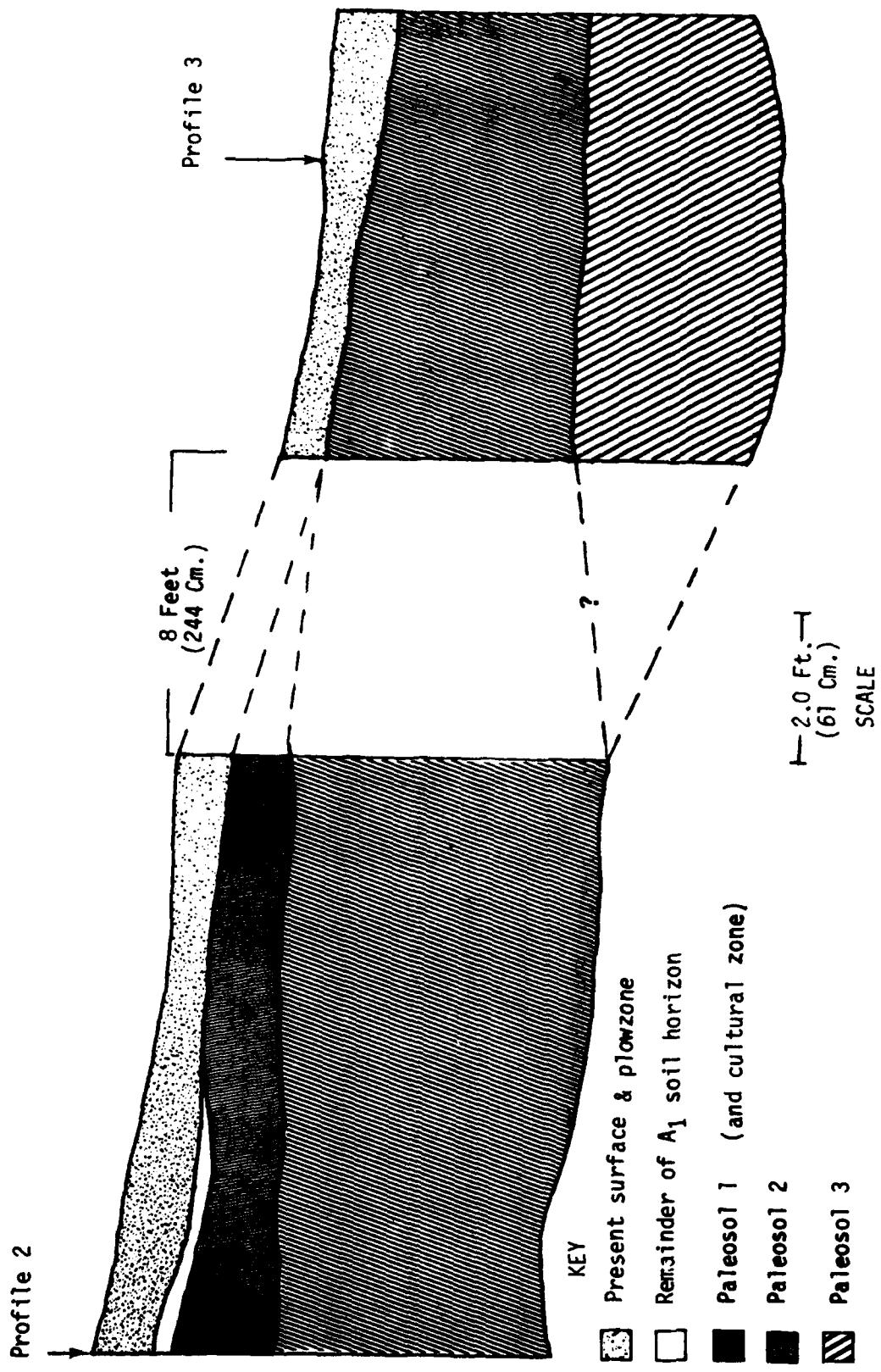


Figure 73. Two Generalized Vertical Profile Segments within the West Wall of Trench #1 at 13BN14. The segment on the left corresponds to the front of the terrace, the hiatus between the profiles includes the terrace escarpment, and the segment on the right corresponds to the floodplain as it abuts the base of the terrace escarpment. Refer to Appendix C for a detailed soils description of Profile 3

Even though very little in the way of artifactual remains had been recovered by the trenching, the information gained in the probes and trenches provided the basis upon which a broad machine scrape might be made to uncover in horizontal profile a section of the buried soil surface just below the plow-zone -- that surface which potentially could have been utilized in the prehistoric period. Such a scrape, removing 420 square ft. (45 square m.) of plowzone overburden, was made on the terrace escarpment between Trenches #2 and 3 (refer to Figure 72). The contact between the plowzone and Paleosol 1 below was cleaned off by hand shovel skinning, but no sub-plowzone features or artifacts were identified or recovered by this method.

To further sample the cultural potential of Paleosols 1 and 2 with a fair degree of control, five hand-dug test squares, each of which was 5 ft. (1.5 m.) square, were established over the site area. Fill removed from each was sifted through 1/2-inch mesh hardware cloth screens during the course of testing. Test Squares #1, 2, and 5 were placed in the vicinity of Trenches #1 and 2 (refer to Figure 72). Test Square #1 was located on the terrace escarpment near the point at which Paleosol 1 is exposed on the surface. This test unit was dug to a final depth of 1.4 ft. (43 cm.), or into the top of Paleosol 2. The plowzone produced seven grit tempered body sherds, a piece of smooth basalt, and two segments of freshwater mussel shell. Nothing of cultural interest was found below this zone of disturbance. Test Squares #2 and 5 were located near the top of the escarpment. Here, collectively, the plowzone produced grit tempered ceramics including a small single-cord impressed neck fragment; 22 thin grit tempered body sherds, most of which are cord roughened or exhibit smoothed-over cord roughening; three pieces of chert shatter; four segments of freshwater mussel shell; and the head of an historic iron three-tined fork. From Test Square #2, immediately below the plowzone and within Paleosol 1 between depths of 0.7 to 2.6 ft. (21-79 cm.), were recovered three grit tempered rim sherds (Figure 74, C and E, and Figure 75, A), nine grit tempered body sherds, one small charcoal sample, and six pieces of freshwater mussel shell. The analogous zone in Test Square #5, from depths of 0.8 to 2.4 ft. (25-73 cm.), produced five grit tempered body sherds, a chunk of chert shatter, a small charcoal sample, one waste flake, one piece of freshwater mussel shell, two upper incisors of a Plains pocket gopher, and an unidentified bone fragment. Nothing of cultural significance was found within the upper portion of Paleosol 2 in either test unit. Both squares were completed at a final depth of 3.0 ft. (92 cm.).

Test Square #3 was located on the terrace surface in the western part of the site near the southern end of Trench #4 (refer to Figure 72). Here nothing was found in the plowzone, but within Paleosol 1 between 0.7 and 1.4 ft. (21-43 cm.) were recovered one chunk of shatter, two molar fragments of white-tailed deer, and seven unidentified bone fragments. As a control, one test square was placed out on the floodplain and was dug into Paleosol 2 deposits to a depth of 1.2 ft. (37 cm.). One sandstone pebble was found within the plowzone; otherwise, the test exposed only sterile alluvium in this position.

Some additional artifacts were collected from the surface of 13BN114 during and just following the testing after the ground had been worked for planting. Those materials added to the inventory include one rim fragment with cord impression on the upper rim exterior, a grit tempered shoulder/neck juncture with smoothed-over cord roughened exterior, twelve grit tempered body sherds, a side notched projectile point (Figure 76, C), a retouched flake, one waste flake, two pieces of shatter, one piece of burned sandstone, three burned bone fragments, and three tooth fragments.

The procedures undertaken in the field study met and went beyond those originally proposed for 13BN114, and the information retrieved will be useful in interpreting the culture-history of the site. Most disappointing, however, is the absence of any positive results from horizontal sampling within the scrape which exposed the top of Paleosol 1 on one portion of the terrace escarpment. Data gotten in the hand-dug test units on the terrace surface and escarpment show, nonetheless, that a cultural horizon is extant in primary context below the plowzone at the site. This result underscores the necessity for the use of a combination of testing techniques when attempting to sample archaeological sites for their significance and research potential, for the reliance on just one approach may severely skew the interpretation of just how much of the resource base is still available.

Results of Testing at Site 13BN114

The tests conducted at 13BN114 have shown that one cultural zone lies extant there on the riverine terrace. The remains of this occupation are located within a buried soil surface which lies below the plowzone plus a remnant of the most recent terrace soil surface toward the back of the terrace is located immediately at the plowzone contact toward the front of the terrace, and outcrops on the terrace escarpment (refer to Figure 73). Although two other buried soil surfaces have been identified below that bearing the cultural remains, neither of these appears to have formerly supported human occupation.

The determination of cultural affiliation of the cultural horizon at 13BN114 is complex. Some diagnostic ceramic traits of both Late Woodland and Great Oasis assemblages seem to occur among the materials gathered in the tests. Rim forms from Test Square #2 alone include one example which may be classified as Great Oasis Plain (Figure 75, A), while two others could fall into either Great Oasis or Late Woodland ceramic types or types transitional between the two. These bear sharp tool markings in the lip or single-cord impressed decoration on the rim exterior (Figure 74, C and E). The associated body sherds are hard and more dense than those generally found in earlier Woodland contexts. The surface treatments vary from cord roughening, to smoothed-over cord roughening, to entirely smoothed vessel surfaces. The exterior color of the vessels, based on the body sherds, is reddish buff to dark gray, and the thicknesses of the vessel walls range from 3-7 mm.

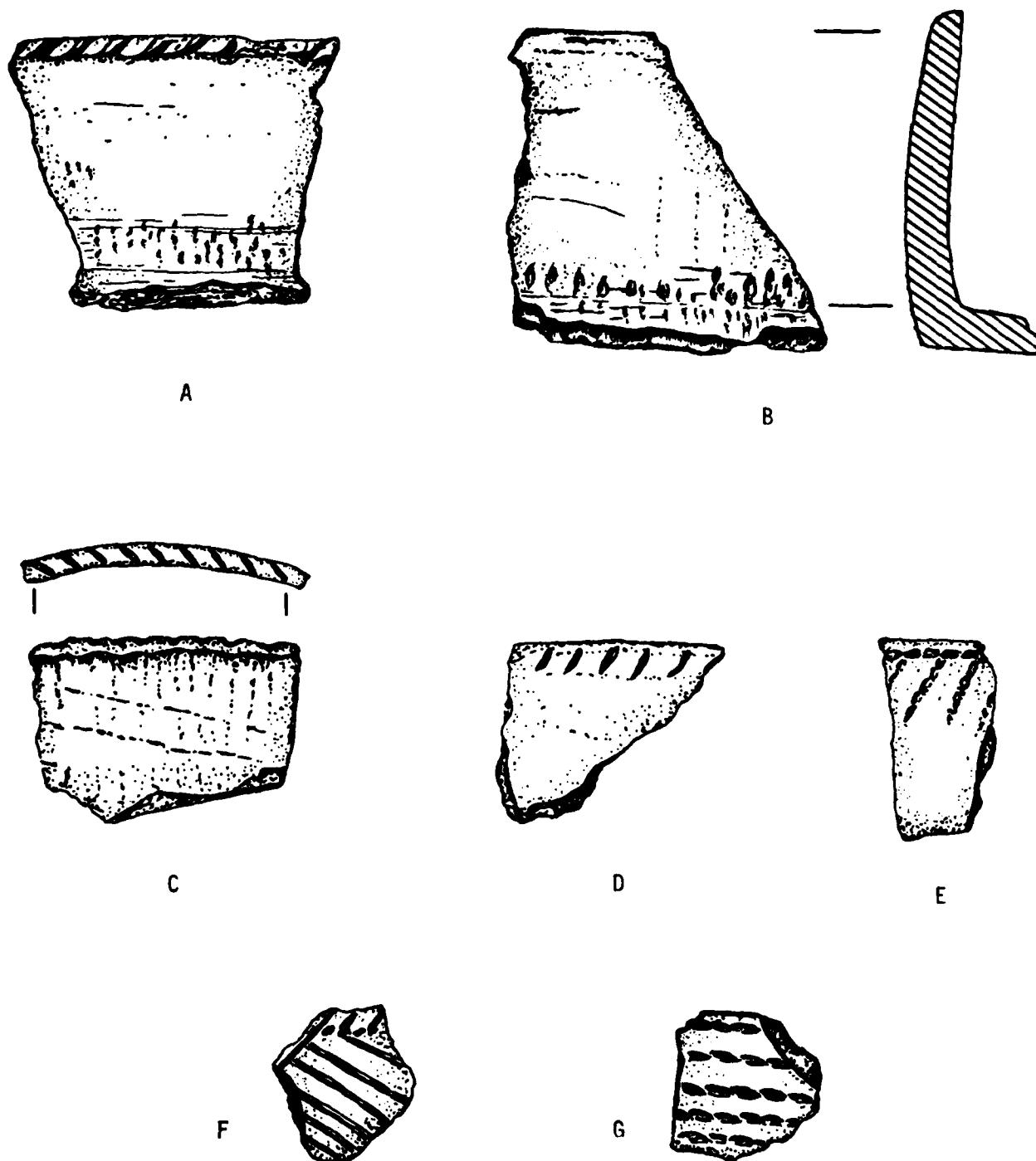


Figure 74. Selected Grit Tempered Ceramic Rims from 13BN114. (A) Smoothed rim/neck juncture with tool-impressed lip #133; (B) Smoothed rim-neck juncture #3, with cross-section; (C) Cord roughened rim with tool-impressed tip #287, with top view; (D) Smoothed rim with tool-impressions on upper rim exterior #4; (E) Single cord impressed rim #282; (F) Rim with parallel incised lines and single-cord impression #6; (G) Rim with parallel single-cord impressions #74. C and E are from the cultural horizon in Test Square #2; all the rest are from the surface. Actual size

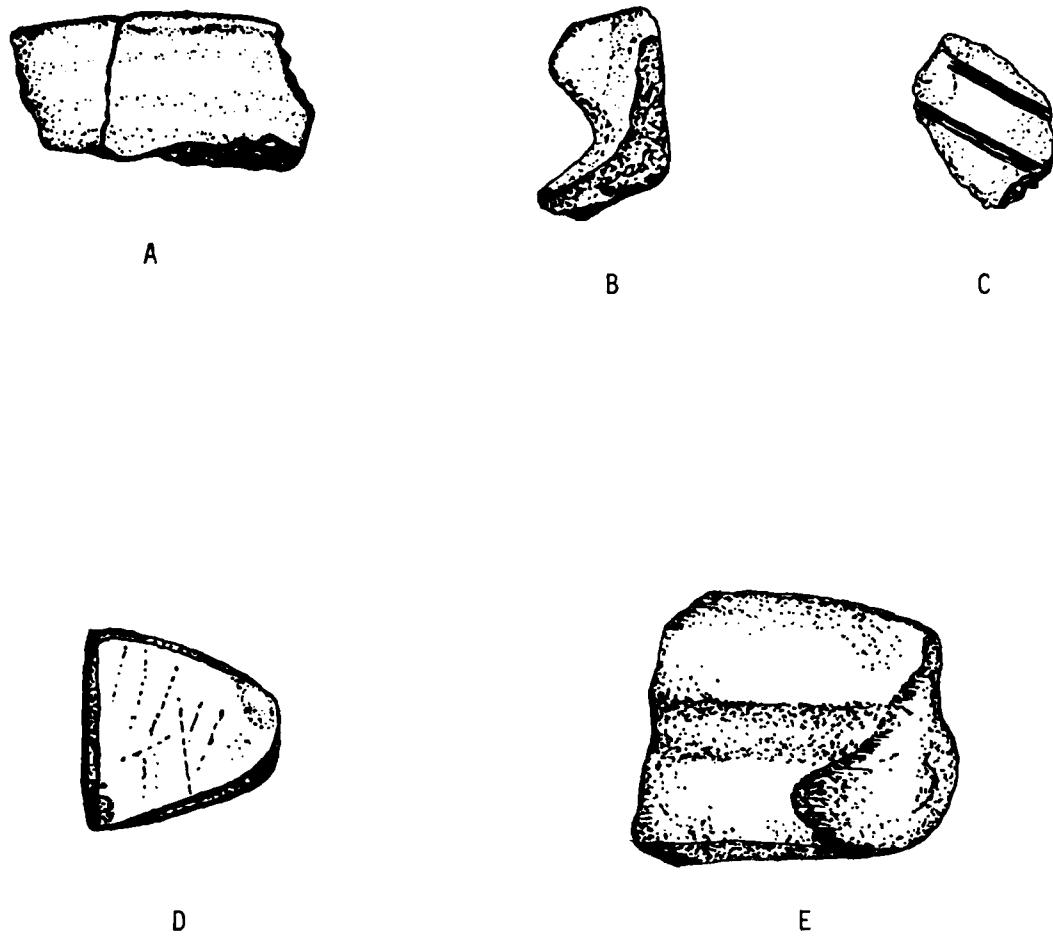


Figure 75. Selected Ceramics and Ground Stone from 13BN114. (A) Great Oasis Plain rim segment #281, (B) Shell tempered Oneota rim with effigy lug #2, (C) Shell tempered Oneota body sherd with trailed lines #1, (D) Ground hematite #228, (E) Sandstone shaft abrader segment #85. A is from the cultural horizon within Test Square #2; all the rest are from the surface. Actual size

Further variations in the ceramics can be observed in those specimens collected from the site's surface. Among the grit tempered rims the most common occurrence is that of a straight rim with smoothed exterior and short oblique tool marks in the lip surface or on the upper rim exterior (e.g. Figure 74, A and D). The neck juncture, when present, is sharp and forms nearly a right angle with the vessel body. The vessel shoulder and lower neck are cord roughened. Also prevalent are rims with the same characteristics but lacking the tool-ticked decoration (e.g. Figure 74, B). At least one rim bears parallel incised lines and a single cord impression on the exterior just below the lip (Figure 74, F); the mode of decoration is suggestive of Great Oasis Incised motifs, but the line of cord marking together with the incising is not characteristic. Great Oasis Incised characteristics have not been noted on any other of the rims from the site. At least two rims bear sets of parallel single-cord impressed lines around the rim circumference (e.g. Figure 74, G) reminiscent of Feye Cord Impressed wares described for Nebraska (Kivett 1952: 54-55).

To the present time the shell tempered ceramics found at 13BN114 have come only from the surface. The specimens available include one rim segment with an eroded effigy lug (Figure 75, B), one smoothed straight rim fragment, one body sherd with parallel trailed lines (Figure 75, C), one smoothed body sherd with red slipped interior, and four additional smoothed body sherds. Since the only shell tempered ceramic assemblages found along the Des Moines River in Iowa previously have been in Oneota contexts, it is assumed that the presence of the shell tempered pottery at 13BN114 is also derived from an Oneota source. Few Oneota ceramics are known for the central Des Moines Valley above the confluence of the Raccoon River with the Des Moines, the locus of the present-day city of Des Moines (Gradwohl 1974: 96), so the presence of such pottery at site 13BN114 holds some significance. Lugs on rim exteriors and red-slipped wares have been noted in Moingona Phase Oneota assemblages in the Red Rock area, but the occurrence of either characteristic is not common (cf. Gradwohl 1973: 28, 56; 1974: 95). The body sherds at 13BN114 tend to be hard and thin (3-5 mm.), although one is as thick as 8 mm. Exterior color of the sherds ranges from reddish buff to dark gray.

Some parallels in the occurrence of pottery thought to be from distinct cultural affiliations may be seen between the assemblage at 13BN114 and that reported for the Hitchell site (39CH45) in south central South Dakota along the Missouri River. There Richard Johnston notes the co-occurrence of Late Woodland-style ceramics with those which may be classified as Great Oasis; several of the rim styles he describes in detail and illustrates are analogous to forms found at 13BN114 (Johnston 1967: 38, 45-48, and Plates 9b, 10a-e). He also notes that the Great Oasis type site in southwestern Minnesota produced similar diagnostic Late Woodland ceramics along

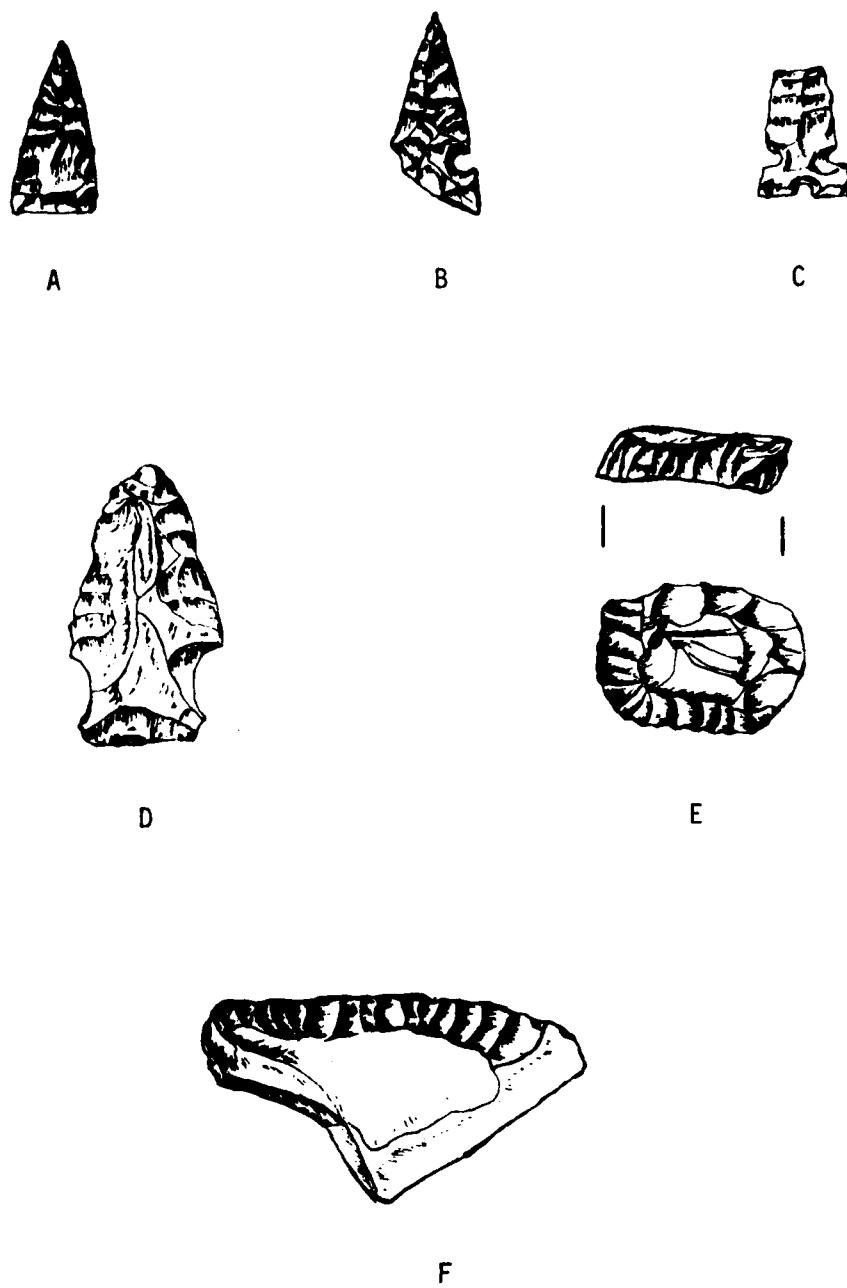


Figure 76. Selected Chipped Stone Tools from 13BN114. (A) Small plain triangular point #18; (B-C) Small side and basally notched triangular points #16 and 216, respectively; (D) Medium-sized side notched point #352; (E) Double-ended end scraper #116, shown with side and top views; (F) Retouched flake/scraper #221. All specimens are from the surface.
Actual size

with the Great Oasis materials, and in addition some Oneota sherds were present as well (Johnston 1967: 70). The emerging assumption from these occurrences would seem to be that, not only did the cultural groups which produced some of the Late Woodland, Great Oasis, and Oneota ceramics in this region share some contemporaneity, but also there was some form of interaction or exchange of material goods between these groups. Clearly, the potential is present at 13BN114 to answer some of the unknowns in regard to relationships between Late Woodland, Great Oasis, and Oneota manifestations -- not only within the immediate scope of the central Des Moines River Valley, but also on a much larger scale within the prairie-plains region.

In addition to the ceramics discussed above, the classes of prehistoric artifact data available from 13BN114 include chipped stone tools in the form of projectile points, an end scraper, a retouched flake/scraper (Figure 76, F) and other retouched flakes, thin bifaces and biface fragments (e.g. Figure 77, A and B), thick bifaces and utilized flakes. Eight of the nine projectile points from the site are of the small thin triangular variety, either unnotched, side notched, or side and basally notched (e.g. Figure 76, A-C). The single exception is a medium-sized side notched point found on the surface after testing had been completed (Figure 76, D). The end scraper recovered (Figure 76, E) had been fashioned in such a way that either end could be used just by flipping the tool over. One large thick biface from which one end is broken (Figure 77, C) is rectangular in shape and may have served as a hoe blade; as such this would constitute the only direct evidence for the practice of agriculture yet recovered from the site. Ground stone is present as one piece of shaped, scratched, and ground hematite (Figure 75, D) and a broken sandstone shaft abrader (Figure 75, C).

Chipped stone source materials and debitage were collected as chert cores and core fragments, shatter chunks, and waste flakes. Faunal material is present in the form of bone, teeth, and shell. Much of this material is from the surface and is likely to be of recent origin, particularly the teeth identified as belonging to cow, pig, and dog, respectively. Faunal materials collected in the test from primary context which can be specifically identified include tooth segments from white-tailed deer (*Odocoileus virginianus*), and the upper molars of a Plains pocket gopher (*Geomys bursarius*), as well as a few small pieces of unidentified bone and tooth fragments, some burned bone fragments, a few land snails, and the ubiquitous freshwater mussel shells -- the latter of which seem to be limited to the cultural horizon and show up whenever that horizon is exposed to the surface. The only plant remains retrieved from primary context thus far are small samples of wood charcoal. Historic materials from the surface and plowzone include a few pieces of ironstone china, a stoneware vessel fragment, two kaolin pipe fragments, field tile, a glass bottle segment, an iron axe blade, and the metal head of a three-tined table fork. These pieces appear to be domestic refuse scatter from the late-nineteenth-century Euro-American settlement of this general area.

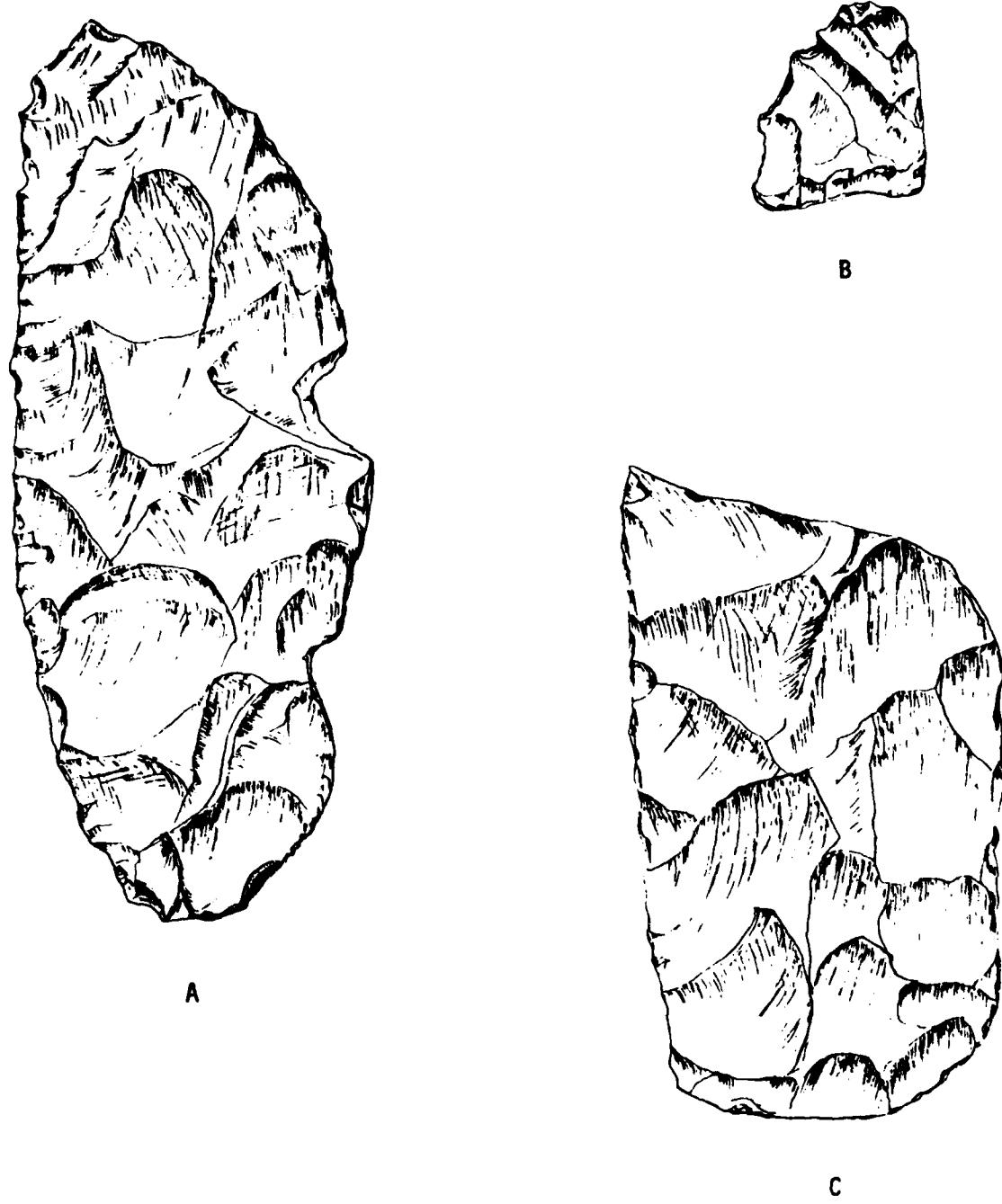


Figure 77. Selected Bifaces from 13BN114. (A) Large ovate thin biface #83, (B) Thin biface fragment #22, (C) Rectangular thick biface or hoe blade #220. All specimens are from the surface. Actual size

Relatively recent quarrying operations for gravel in the vicinity of 13BN114 are likely to have had some impact on the prehistoric cultural resources at the site. According to the earliest aerial photo available for this area (BZE-2-68, taken 1 June 1939), quarrying was extended to the area immediately south on the terrace surface contiguous with that on which the site is found during the time period shortly after 1939 (refer to Figure 72). Removal of gravel from this area was still active in 1958 according to the next aerial series available (BZE-2V-43, taken 25 May 1958). Trees observed today on the back portion of the terrace did not become established until sometime after 1958. The landscape had been modified significantly, and any portion of the prehistoric occupation which had been located at the very back of the low terrace or on a slightly higher terrace to the south and west was likely to have been destroyed. On the other hand, soils analysis has shown that the paleosol within which the cultural horizon is located at 13BN114 lies slightly deeper toward the back of the low terrace, so any areas not destroyed by the removal of gravel possess a higher chance of having cultural deposits preserved within them (refer to the discussion for 13BN114 in Appendix C).

Impacts of the Saylorville Lake Project on Site 13BN114

Site 13BN114 lies within the upper portion of the flood control pool of Saylorville Lake, a position which dictates that the site will undergo intermittent inundation whenever the lake is allowed to fill to a level beyond 875 feet in elevation for flood storage. Wave action along the shoreline at this locus will assuredly destroy large portions of the cultural zone at the site, particularly since this zone has been shown to be exposed at the surface on that portion of the terrace nearest to the present river channel.

Although no development of recreational facilities has been planned for the site's location, careful consideration must be given to other potential impacts secondary to the operation of Saylorville Lake here. Permits for gravel quarrying in the general vicinity on Federal properties have been issued by the Federal Government to local industrial concerns for several years. No such permits should be issued which would allow deep excavation for gravel to encroach upon the cultural deposits remaining at 13BN114.

Recommendations for Further Work at Site 13BN114

It is strongly recommended that further archaeological investigations take place at site 13BN114. Among those Priority I sites tested under this contract, the cultural remains at this site are unique in the apparent co-occurrence of Late Woodland, Great Oasis, and Oneota cultural traits which indicate either multicomponency of an apparent single cultural horizon and/or close interrelationships such as trade or intermarriage between contemporaneous groups of distinct cultural affiliation. Excavation on most of the terrace surface would not have to extend any deeper than 2.5 to 3.0 ft. (76-92 cm.), as it has been shown that the cultural horizon here lies

immediately below or a short distance blow the present plowzone. Exploration should be initiated along the terrace surface where the cultural horizon is exposed along the escarpment and should then follow horizontally the cultural deposits as these occur toward the back of the terrace, where these are more likely to be more deeply buried. Some disturbance by graveling and the secondary tree growth would serve to limit this expansion to the south. The cultural zone may extend along the terrace both to the east and to the west of the position of Trench #1. Plowzone overburden could be quickly removed over a broad area with machine blading, but extreme caution would have to be exercised with such a technique near the terrace edge where the cultural zone is shallowly buried.

13BN123

Environmental Context of Site 13BN123

Site 13BN123 is located on a riverine terrace above the right bank of the Des Moines River in Boone County, Iowa (Figure A-26). This locus is now within the Riverbend Boat Launch recreation satellite. The site is bounded on the north by a former farmstead and on the south by a former fenceline. The eastern limit is the terrace margin as it joins the floodplain, and to the west the site evidently extends for at least 100 feet (30 meters) beyond the county gravel road and fence into a field (refer to Figure A-27). The site's position lies at 875 to 885 feet above mean sea level and covers an area of 8 to 10 acres (3 to 4 hectares). This area has been under cultivation within the historic period and for a time was within or adjacent to an amusement park which operated along the river in the early 1900s.

The soil upon which the site is located is mapped as Hanlon fine sandy loam, 0-2% slopes (USDA Soil Conservation Service 1981: 27, 63 and Sheet 39). Such soil developed on nearly level moderately well drained natural levees and probably supported a native vegetation of trees or trees mixed with prairie species. The terrace on which the site is located, and a slightly higher terrace on beyond it to the west, are underlain by sands and gravels. These deposits are actively being quarried for commercial purposes immediately west of the site.

Previous Investigations at Site 13BN123

Site 13BN123 was located by personnel from the Iowa State University Archaeological Laboratory on 9 June 1969 while conducting archaeological investigations within Saylorville Reservoir under a contract with the National Park Service. At the time the site was found the only potentially prehistoric cultural materials recovered were one waste flake and several freshwater mussel shells. However, the bean field was littered with historic artifacts from the late nineteenth and early twentieth centuries including a variety of broken china, fragments of stoneware vessels, glass bottle segments and other miscellaneous glass objects, an iron kettle fragment, pieces of metal cans, a 1905 Indianhead penny, a perforated silver medal or coin stamped with the name ROBSON, and iron nails and other assorted metal. Upon checking with a local informant it was learned that this area along the river had been a popular amusement park in the early twentieth century -- a plausible origin for this material. Upon checking the field directly west of the road 3 or 4 more waste flakes were found and were added to the site's inventory. A summary of information known for 13BN123 was given to the U.S. Army Corps of Engineers-Rock Island District in 1973 as part of a roster of sites inventoried within the Saylorville Lake project (Gradwohl and Osborn 1973b: 40).

Nothing more of an archaeological nature was done at the site until development of the Riverbend Boat Launch Recreation Satellite was begun in August of 1974. It was at this time that an archaeological monitoring program for areas under construction within the Saylorville Lake project was first utilized. Monitors from the Iowa State University Archaeological Laboratory watched as borrow activities were taking place and, in the process, discovered a stone-filled hearth and allied prehistoric cultural materials as the topsoil was being removed from the central site area on 14 August 1974. Earthmoving continued but was diverted around the exposed hearth as much as possible. A crew from the archaeological laboratory at Iowa State University was brought to the site to begin emergency salvage work before the cultural zone was entirely obliterated (Plate 20). An area around the hearth of 444 square ft. (40 square m.) was quickly shovel skimmed to the plow-zone contact, and features and artifacts were mapped as these were encountered (refer to Figure 78, Plate 21 and Plate 22). A few circular soil stains appeared to be post molds, although the majority of all stains cored proved to be krotovinas and not of cultural origin. Cultural materials recovered from primary context and from the borrow fill included grit tempered vessel fragments, many of which were cord roughened (refer to Table 12). Decoration present is typical of Middle Woodland ceramics within this region and includes incising over cord roughening, internal punctations and external bosses, cord-wrapped stick impressions, some rocker stamping, and some combing. One side notched point, as well as other chipped stone tools, lithic debitage, some burned clay or daub, unworked limonite and hematite, and charcoal were also collected. The monitors also discovered a crushed conical vessel base in situ in an area 350 ft. (107 m.) northwest of the hearth (Plate 23). During skimming of the plowzone overburden from this area a human cranium was partially exposed in apparent association with the pot. Since State and Federal jurisdiction was at that time not clear in regard to the removal of Native American human remains in this prehistoric archaeological context, the presumed burial was quickly covered over with earth and secured under a black plastic cover. Emergency testing at the site was concluded on 23 August 1974 and the area was allowed to grow over with weeds and grasses.

In May of 1975 site 13BN123 was checked during the intensive survey of Reconnaissance Unit 17, part of the larger reconnaissance program for the entire upper portion of Saylorville Lake conducted by Iowa State University for the Corps. Throughout that summer, too, the final construction efforts for the recreation area were archaeologically monitored. Still more prehistoric material including Middle Woodland rims characterized by punctations and bosses, cord-wrapped stick impressions, and incising over cord roughening; dentate-stamped body sherds and cord roughened body sherds; one single-cord impressed sherd; a side and basally-notched triangular point; a point tip and other chipped stone tools; a core fragment;



Plate 20. Initiation of Emergency Archaeological Testing at Site 13BN123 Around the Rock-Filled Hearth Unearthed During Construction of the Riverbend Boat Launch and Recreational Satellite in August of 1974. View is to the south



Plate 21. Expansion in Progress of the Major Emergency Test Block at Site 13BN123. The access road into the recreation satellite is under construction just behind the archaeological field workers. View is to the southeast

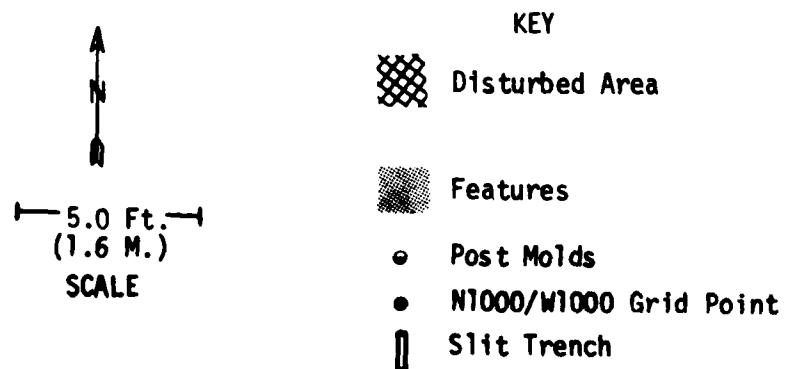
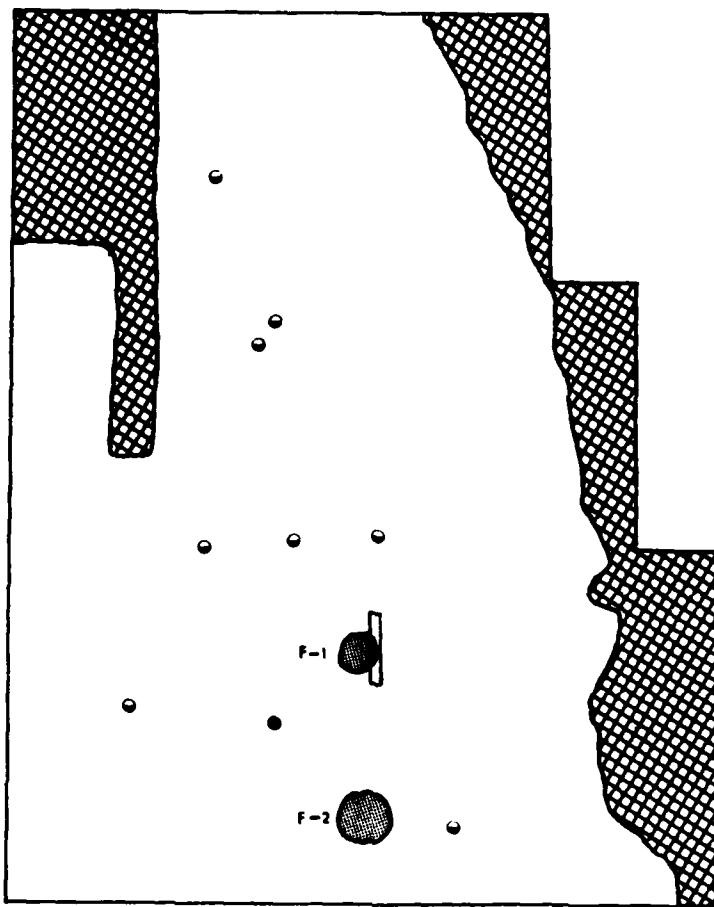


Figure 78. Horizontal Plan of the Completed Major Emergency Archaeological Test Block Opened at Site 13BN123 in August of 1974. Feature 1 is a rock-lined hearth; Feature 2 is a soil stain. Disturbance was from the cuts made by earthmoving equipment during construction of the Riverbend recreational satellite



Plate 22. The Major Emergency Test Block at Site 13BN123 After Completion in August of 1974. Earthmoving for construction was continued around the perimeter of the test block. View is to the northwest



Plate 23. Discovery of a Crushed Woodland Vessel In Situ within One of the Construction Cuts at Site 13BN123. A human cranium, which was left in place when found, was discovered next to the vessel. View is to the southeast

PREHISTORIC ARTIFACTS		Total	Material Collected Prior To and Between Tests		Material Collected During Testing in 1974		Material Collected During Testing in 1981		Surface (cultivated field & artificial surface resulting from construction)		Ap or Plowzone & Unsifted Trench Fill		General Cultural Zone Just Below Ap in 1974 Test - Depth Below Surface Unknown		General Cultural Zone in 1981 Test - Probably A3/B2 Soil Horizon (0.2-0.75 ft.; 6-22 cm.)		Feature 1: Fire Hearth		Feature 3: Human Burial Area	
<u>Ceramics</u>																				
Decorated Woodland rim/body segments (Havana Ware) -- includes reconstructed vessel body from Feature 3	24		7	11	6		14	3	-	6		-	1							
Undecorated or cord marked grit tempered vessel segments	270		88	139	43		184	4	39	43		-	-							
Fired clay and/or daub	4		1	3	-		1	3	-	-		-	-							
<u>Chipped Stone</u>																				
Medium-sized side notched points	2		1	1	-		1	-	1	-		-	-							
Thin biface fragment or point tip	1		1	-	-		1	-	-	-		-	-							
Retouched flake/scraper	1		-	1	-		1	-	-	-		-	-							
Retouched flakes	2		2	-	-		2	-	-	-		-	-							
Utilized flakes	6		4	2	-		5	-	1	-		-	-							
<u>Chipped Stone Source & Waste Material</u>																				
Core fragments	1		1	-	-		1	-	-	-		-	-							
Shatter chunks	9		2	5	2		3	1	3	2		-	-							
Waste flakes	78		62	12	4		72	1	2	3*		-	-							
<u>Ground Stone</u>																				
Pecked stone (one used as an anvil)	2		2	-	-		2	-	-	-		-	-							
<u>Unworked Stone Source Material</u>																				
Hematite & limonite	13		3	7	3		7	-	2	3	1	-	-							
Fire-cracked rock (granite, diorite, basalt, quartz & chert nodules)	94		-	92	2		-	-	-	2	92	-	-							
Ferruginous sandstone	1		-	-	1		-	-	-	1	-	-	-							
HISTORIC ARTIFACTS																				
<u>Ceramics</u>																				
Ironstone vessel fragments	24		23	-	1		23	1	-	-	-	-	-							
Stoneware vessel fragments	77		77	-	-		77	-	-	-	-	-	-							
Stoneware or kaolin pipe fragments	2		2	-	-		2	-	-	-	-	-	-							
Porcelain insulator fragment	1		1	-	-		1	-	-	-	-	-	-							
Glazed brick fragment	1		1	-	-		1	-	-	-	-	-	-							
<u>Glass</u>																				
Clear, green, & amber glass container fragments	92		92	-	-		92	-	-	-	-	-	-							
Molded glass object fragments	2		2	-	-		2	-	-	-	-	-	-							
Milkglass preserve jar lid liner fragments	2		2	-	-		2	-	-	-	-	-	-							
Molten glass chunks	2		2	-	-		2	-	-	-	-	-	-							
<u>Metal</u>																				
Copper Indianhead penny - 1905	1		1	-	-		1	-	-	-	-	-	-							
Perforated silver medal	1		1	-	-		1	-	-	-	-	-	-							
Tin can fragments	2		2	-	-		2	-	-	-	-	-	-							
Iron cut nails	2		2	-	-		2	-	-	-	-	-	-							
Miscellaneous iron fragments (kettle fragment, wire nail, wire, sheet iron, & a buckle)	5		4	1	-		4	1	-	-	-	-	-							

Chipped Stone

Medium-sized side notched points	2	1	1	-	1	-	1	-	-	-
Thin biface fragment or point tip	1	1	-	-	1	-	-	-	-	-
Retouched flake/scraper	1	-	1	-	1	-	-	-	-	-
Retouched flakes	7	2	-	-	2	-	-	-	-	-
Utilized flakes	6	4	2	-	5	-	1	-	-	-

Chipped Stone Source & Waste Material

Core fragments	1	1	-	-	1	-	-	-	-	-
Shatter chunks	9	2	5	2	3	1	3	2	-	-
Waste flakes	78	62	12	4	72	1	2	3*	-	-

Ground Stone

Pecked stone (one used as an anvil)	2	2	-	-	2	-	-	-	-	-
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Unworked Stone Source Material

Hematite & limonite	13	3	7	3	7	-	2	3	1	-
Fire-cracked rock (granite, diorite, basalt, quartz & chert nodules)	94	-	92	2	-	-	-	2	92	-
Ferruginous sandstone	1	-	-	1	-	-	-	1	-	-

HISTORIC ARTIFACTS

Ceramics

Ironstone vessel fragments	24	23	-	1	23	1	-	-	-	-
Stoneware vessel fragments	77	77	-	-	77	-	-	-	-	-
Stoneware or kaolin pipe fragments	2	2	-	-	2	-	-	-	-	-
Porcelain insulator fragment	1	1	-	-	1	-	-	-	-	-
Glazed brick fragment	1	1	-	-	1	-	-	-	-	-

Glass

Clear, green, & amber glass container fragments	92	92	-	-	92	-	-	-	-	-
Molded glass object fragments	2	2	-	-	2	-	-	-	-	-
Milkglass preserve jar lid liner fragments	2	2	-	-	2	-	-	-	-	-
Molten glass chunks	2	2	-	-	2	-	-	-	-	-

Metal

Copper Indianhead penny - 1905	1	1	-	-	1	-	-	-	-	-
Perforated silver medal	1	1	-	-	1	-	-	-	-	-
Tin can fragments	2	2	-	-	2	-	-	-	-	-
Iron cut nails	2	2	-	-	2	-	-	-	-	-
Miscellaneous iron fragments (kettle fragment, wire nail, wire, sheet iron, & a buckle)	5	4	1	-	4	1	-	-	-	-

ECOLOGICAL MATERIALS

Bird leg bone	1	1	-	-	1	-	-	-	-	-
Mammal tooth fragments	2	2	-	-	2	-	-	-	-	-
Freshwater mussel shell fragments	9	9	-	-	9	-	-	-	-	-
Wood charcoal samples	13	-	6	7	2	-	1	6	3	1

HUMAN OSTEOLOGICAL REMAINS

Cranial units	5	-	-	5	-	-	-	-	5	
	752	398	280	74	520	14	49	66	96	7**

*obsidian flakes

**does not include materials retrieved by flotation

Table 12. Tabular Summary of Archaeological Materials Recovered from Site 13BN123. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.

shatter; and waste flakes could be found in the bare areas where ground cover had not yet become established. Historic material was also very much in evidence. The data collected to date about the site were reported to the Corps in 1976 with the recommendation that removal of the human skeletal remains and further testing around them should take place as soon as this would become legally possible (Gradwohl and Osborn 1976: 210).

A sample of wood charcoal from the rock-lined hearth, designated Feature 1, was submitted in 1976 to the Radiocarbon Laboratory at the University of Wisconsin-Madison for radiocarbon assay. The result of that analysis (WIS-906) was a date of A.D. 1010 ± 60 (see Appendix C); however, Dr. Margaret Bender of the Radiocarbon Laboratory cautioned that the size of the sample assayed (3 grams) was probably too small to have provided a truly reliable date.

Visits to the site were made periodically between 1976 and 1980 to determine if there were any further adverse impacts to the site and, in particular, to the human burial area by public access to and use of the boat launch. Potential problems in that regard were minimized because the site area was left in weeds and grass and was not mowed. Pottery sherds and lithics such as utilized flakes, shatter, and waste flakes, as well as the ubiquitous historic china and stoneware, could still be found on the surface during this period.

Statement of Research Objectives for Site 13BN123

Results of the emergency archaeological testing conducted at 13BN123 in 1974 as an adjunct to archaeological monitoring of construction activities within the Saylorville Lake project have demonstrated that an intact prehistoric cultural zone of Middle Woodland cultural affiliation had been present there prior to the inception of earthmoving. Although this basic research question was answered by the emergency tests, several others were raised in the process: What was the nature of the human skeletal deposit at the site; was it, indeed, associated with the cultural zone which had been exposed a short distance away; and did this deposit constitute only one of several burials within a cemetery area adjacent to a domestic encampment. Finding answers to these questions, then, became the objectives in the renewed tests at the site. In addition, it was hoped that the site might provide data necessary to help answer the formal research question posed for the Saylorville region regarding the interaction of the inhabitants of Middle Woodland Havana sites -- both within the immediate area of this portion of the central Des Moines Valley as well as within the greater cultural diffusion sphere presumed to include the more "classic" Havana-Hopewell manifestations located to the east along and beyond the Mississippi River.

Because of the emergency nature of the 1974 archaeological work, those tests had not been taken beyond the depth of the cultural zone exposed by the construction machinery. Therefore, in the present tests, the determination of the presence or absence of any additional buried soil horizons which might have supported human habitation below that of the cultural zone exposed became yet another goal.

Of major concern at 13BN123 were the ethics of leaving the human remains, once exposed, in potential jeopardy within a public development area. One specific goal of the tests at the site was to provide for the removal of these remains in a respectful manner such that they would no longer be endangered by additional development or land use which might occur in the future. Coordination correspondence from the Rock Island District of the U.S. Army Corps of Engineers dated 25 August 1980 stipulated that no archaeological work was to take place at 13BN123 until notice to proceed was given. Such written notice was received in a letter dated 17 June 1981, allowing the tests to proceed and the skeletal remains to be removed for analysis (refer to Appendix I).

Statement of Methodology at Site 13BN123

As discussed above, legal determinations had to be made prior to the removal of the human osteological remains from 13BN123, so written permission to institute archaeological testing there under this contract was not given until mid June of 1981. Before excavation of the backhoe trenches proposed in the field strategy took place, soil probes were made at the site to determine the potential for buried soil horizons there. Five solid-core probes, each 2 inches (5 cm.) in diameter, were taken with a truck-mounted hydraulic probe along an east/west transect across the terrace surface and through the area just north of that in which one cultural zone had already been defined (refer to Figure 79). As a control, three additional probes were made on the floodplain between the terrace escarpment and the present river channel. All probes were taken to a terminal depth of 6 ft. (183 cm.). Of those probes taken on the terrace surface, only Probe #1, immediately south of the position of the human osteological remains, was found to have a nearly intact soil column (refer to the soil description in Appendix C). Machine grading had removed much of the topsoil in this field in 1974. Therefore, the amount of A soil horizon remaining within the other soil probe loci on the terrace was found to range from 0.5 to 2.2 ft. (15-67 cm.), indicating that at least 1.7 to 3.4 ft. (52-104 cm.) of topsoil had been removed during the collection of borrow fill from the area. By probing it was determined that no deeply buried soil horizon would likely be present on the terrace, and the floodplain was found to consist entirely of thick recently-deposited alluvial sands (refer to Appendix C).

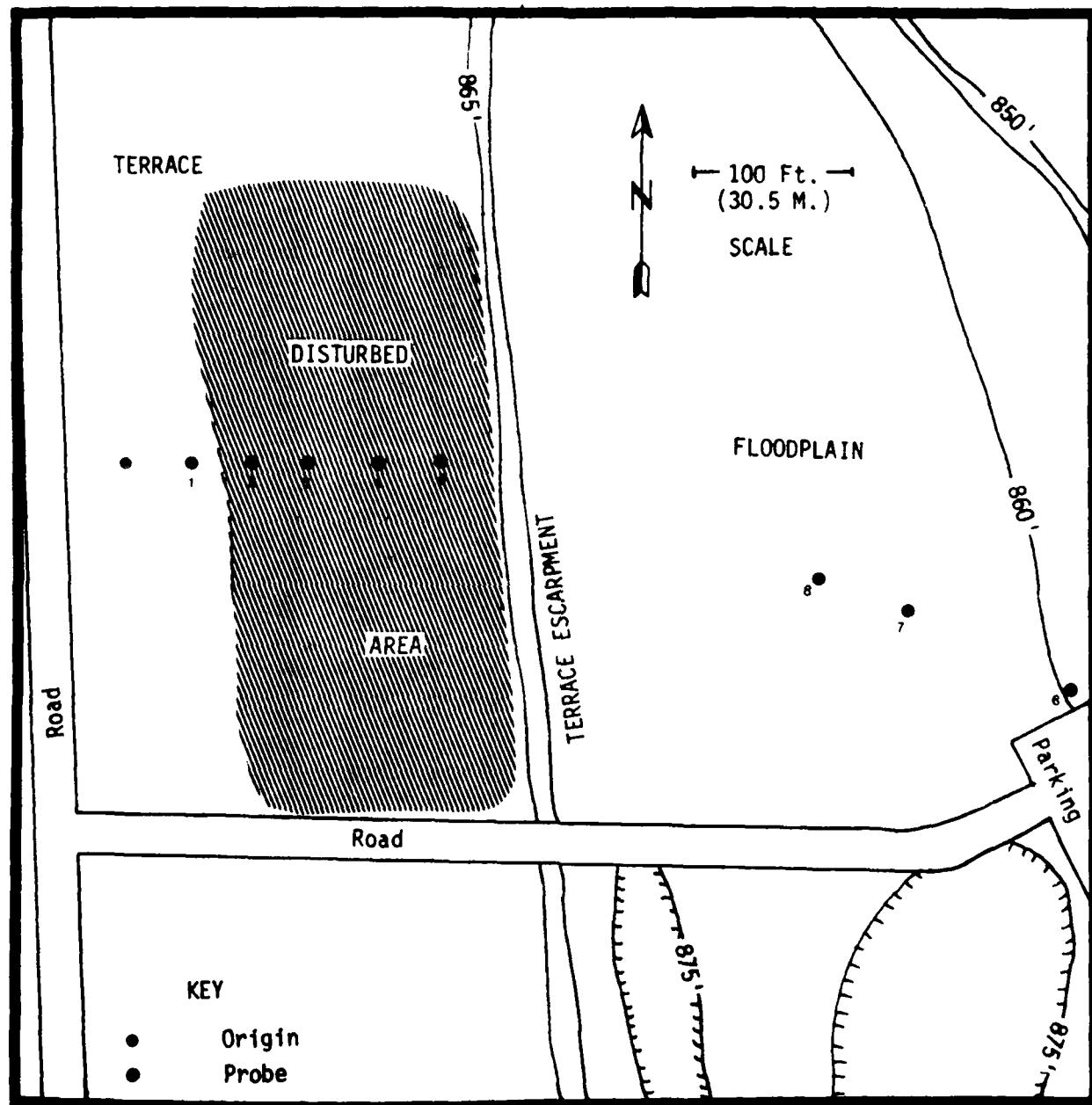


Figure 79. General Geomorphology and Placement of Soil Probes at Site 13BN123. The shaded area corresponds to that portion of the site most heavily impacted by earthmoving during construction of the Riverbend recreation satellite

As proposed in the field strategy, a backhoe trench to expose an extended vertical profile was dug to the north of the human burial area -- designated as Feature 3 -- and was oriented north/south for a distance of 25 ft. (8.2 m.). The position of a second backhoe trench was altered from that proposed in the field strategy based on the results of probing. Since a fair amount of disturbance was demonstrated to have occurred east of Feature 3, a decision was made to place Trench #2 west of, rather than east of, that feature (refer to Figure 80). This trench was oriented east/west over a distance of 45 ft. (14.8 m.). Both trenches were taken to final depths of 3.5 ft. (107 cm.) into the sterile sand of the C soil horizon (refer to Appendix C). No cultural materials were recovered during the course of the trenching, although one waste flake was found in the backdirt of Trench #1.

The next step in the testing procedure at 13BN123 was to shovel skim the vegetation from around the osteological remains within Feature 3 and to remove the black plastic and protective matrix from around the bone deposit. The soil surrounding the deposit was then carefully and systematically trowelled away and the bone was further exposed with bamboo picks and small paint brushes (Plate 24). This process was continued until the lower extent of the bone deposit was reached and a light-colored soil stain was defined as a probable pit outline in horizontal plan (Plate 25 and Plate 26). At this point the bone material, which was in a very poor state of preservation, was removed en bloc in four separate units labelled A through D (refer to Figure 81), retaining as much matrix as possible around the bone so as to protect it in transit for analysis. The remaining pit fill was then removed in chunks and bagged for water flotation processing in the laboratory. The bottom of the feature was found to be 0.55 ft. (17 cm.) below the present -- albeit artificially lowered -- ground surface.

For controlled horizontal cluster sampling around Feature 3, then, a test grid of six 5 ft. (1.5 m.) square test units was laid out to include the area from which the osteological remains had just been removed and from which the base of a conical vessel had been excavated in 1974 (refer to Figure 81). Each test unit was designated by the coordinates of the southeast corner of that unit and the entire grid was tied into that established in 1974. Since the scrapes made by the construction machinery in 1974 had removed the plowzone and had exposed the cultural zone to the surface in the immediate vicinity of Feature 3, extreme care was taken in shovel skimming each of the test units. Artifacts were mapped as these were encountered, and all of the fill removed was sifted through 1/2-inch mesh hardware cloth screens for further control.

Cultural materials were uncovered as a general scatter throughout the opened test block and were found in primary context below the present ground surface from 0.2 to 0.75 ft. (6-23 cm.); however, the majority of artifacts were recovered near the top of this zone between 0.2 and

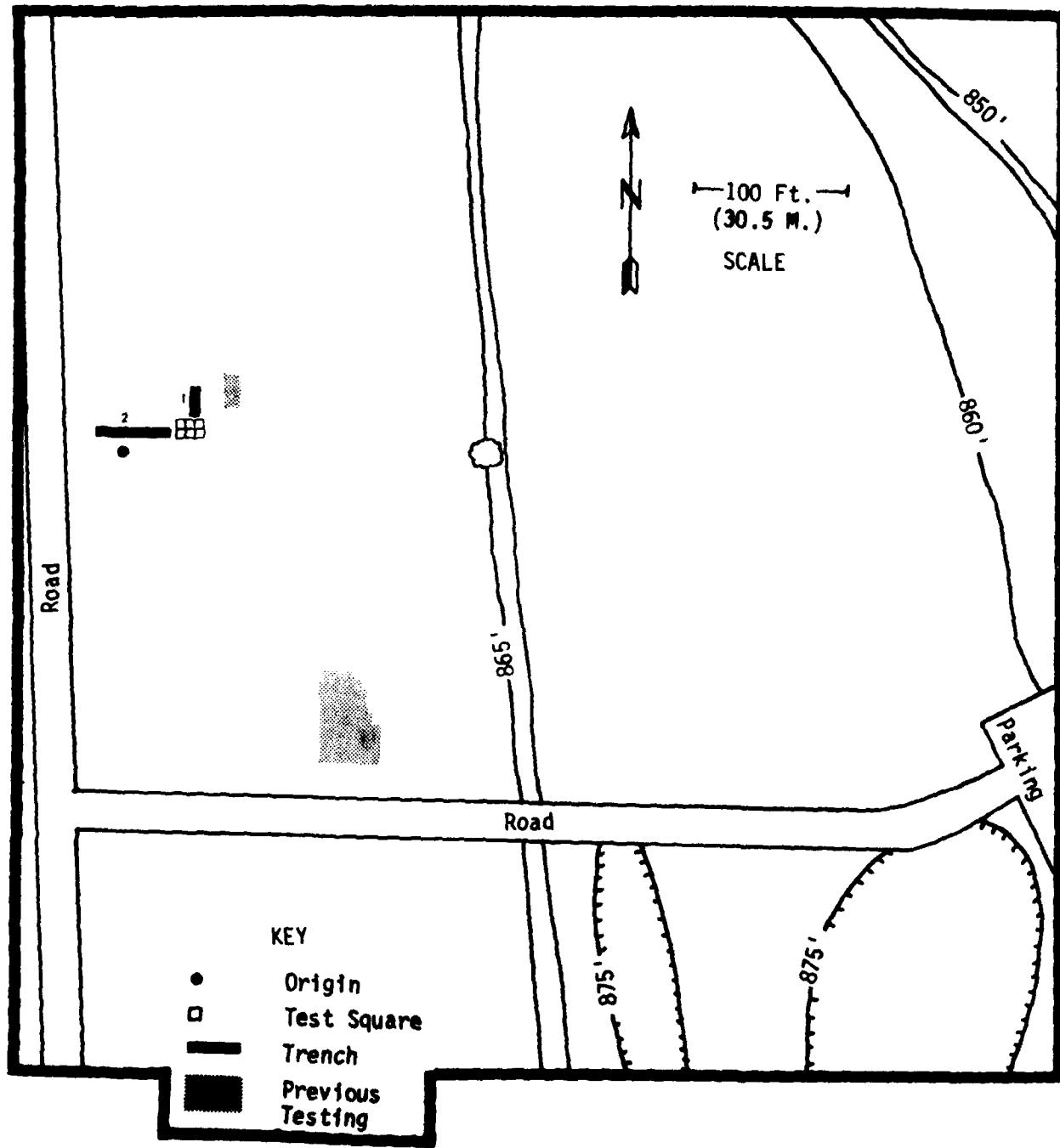


Figure 80. Placement of Test Trenches and Contiguous Test Units at Site 13BN123. The lightly shaded areas indicate the locations of preliminary archaeological tests which took place in 1974 while construction of the Riverbend recreational satellite was in progress



Plate 24. Initial Removal of Soil Matrix Surrounding the Human Osteological Remains within Feature 3 at 13BN123 in June of 1971. View is to the northwest



Plate 25. Careful Trowelling of the Area Surrounding the Human Osteological Remains within Feature 3 at 13BN123 to Define the Pit Outline. View is to the west northwest

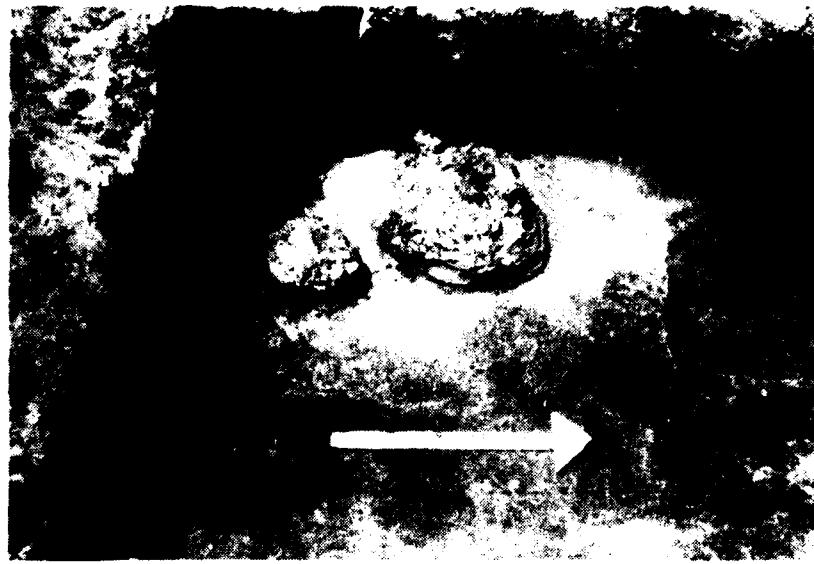


Plate 26. The Human Osteological Remains within Feature 3 at 13BN123 As These Were Exposed Just Prior to Removal for Analysis. Note the light-colored pit fill surrounding the bone deposits. View is to the west

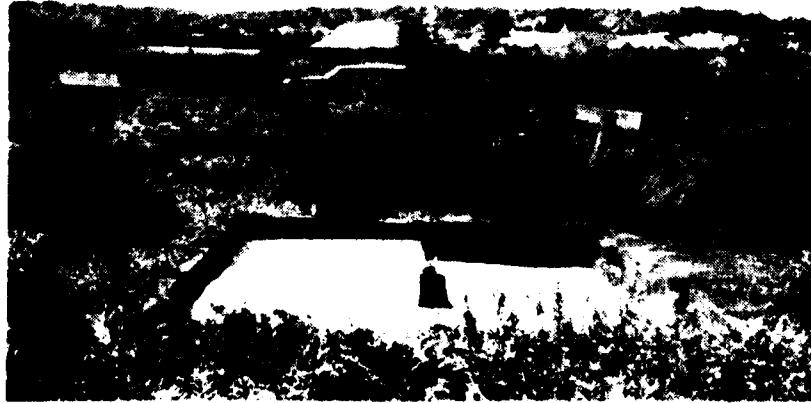


Plate 27. The Completed Test Block Located Around Feature 3 at the Conclusion of Testing at 13BN123 in June of 1981. Note the gravel quarry operations in the background. View is to the west

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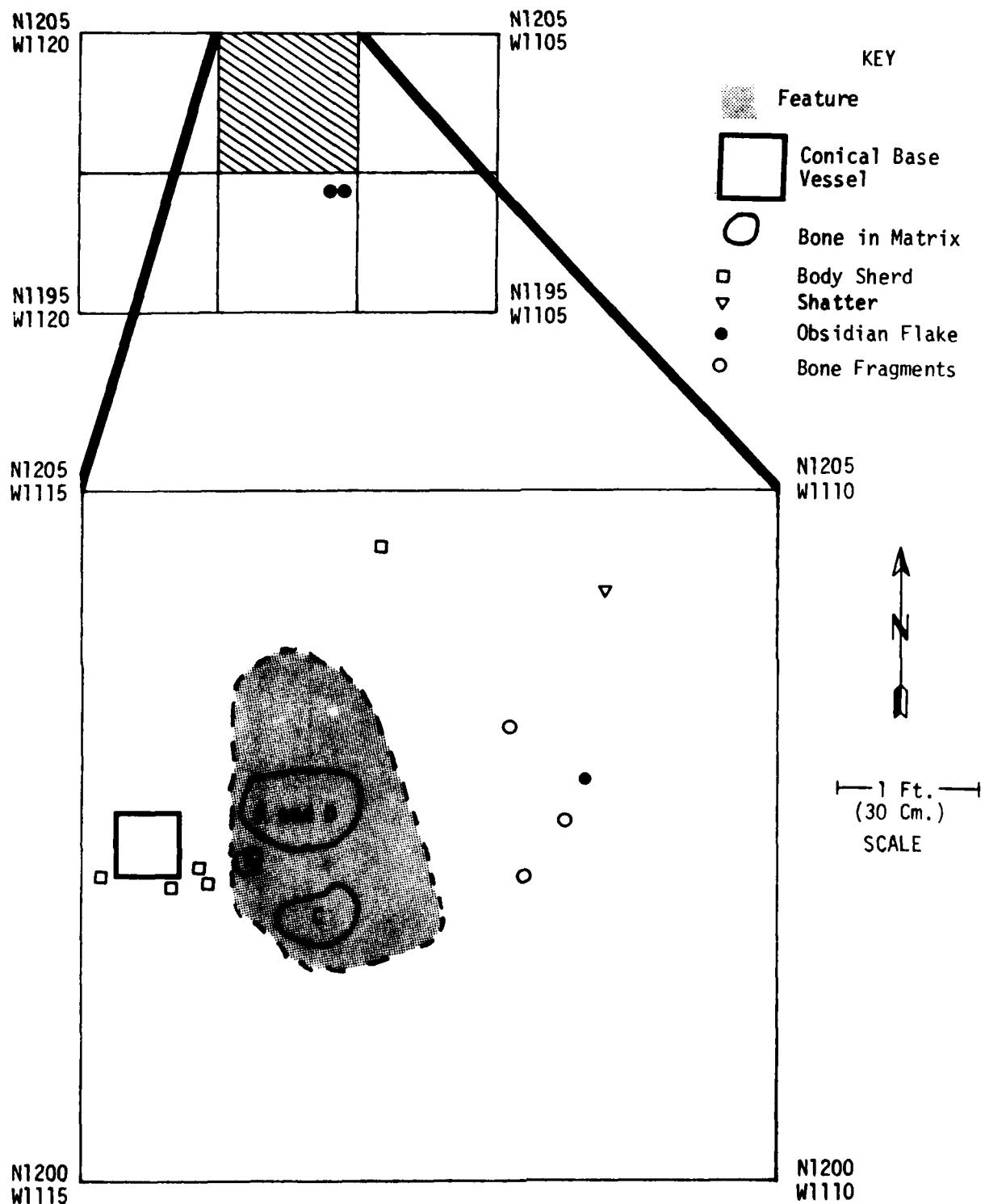


Figure 81. General Lay-Out of the Block of Test Squares Surrounding Feature 3 at Site 13BN123, with a Detailed Horizontal Plan of Test Square N1200/W1110 in Which Feature 3 Was Located. The materials shown were recovered from primary context between depths of 0.2 and 0.75 ft. (6-23 cm.) below the graded ground surface. Note the locations of the three obsidian flakes within the cultural zone. Refer to Appendix C for description of the bone

0.4 ft. (6-12 cm.). No cultural items had been found within Feature 3, the light-colored sandy stain containing the human osteological remains. In addition to the reconstructed grit tempered conical vessel recovered from just outside Feature 3 in 1974 (refer to Figure 81 and Figure 83), ceramics recovered from the cultural zone within the test block include a rim segment with dentate stamping and an external boss plus corresponding interior punctuation (Figure 82, D), two small rim lip fragments, one small body sherd with incised lines and dentate stamping over cord roughening, two small body sherds with combed surface treatment, three smoothed body sherds, and forty cord roughened body sherds. Other cultural materials recovered include three obsidian flakes (refer to Figure 81), two pieces of chert shatter, plus three pieces of unworked hematite, one chunk of fire-cracked granite and one flake of fire-blackened diorite, a ferruginous sandstone nodule, and six small samples of wood charcoal. All of the test squares were dug to a final depth of at least 0.8 ft. (24 cm.) below the surface datum maintained at the center of the test block. As a control, however, Test Square N1200/W1115 was taken to a depth of 1.1 ft. or 34 cm. (refer to Plate 27), at which point only krotovinas were noted. The test units and trenches were then back-filled by machine.

Results of Testing at Site 13BN123

Renewed archaeological testing at 13BN123 under this contract has succeeded in producing necessary data to answer several of the informal research questions pertinent to the site. Soil probes and backhoe trenches placed on the terrace surface have shown that only one solum is present there, and it is unlikely that any deeply buried soil surfaces exist which could have served as habitation loci in the prehistoric period prior to the occupation of the cultural zone identified just below the ground surface. This cultural zone represents a domestic encampment which may be attributed to a Middle Woodland cultural affiliation on the basis of the diagnostic ceramics found on the graded surface of the site as well as within primary context just below that surface. The location in 1974 of features such as a rock-lined hearth and some nearby post molds, one of which contained fired clay or daub, suggests a habitation of some permanence.

Discovered within this cultural zone was a deposit of human osteological material in a sandy matrix, the whole of which is assumed to have been a burial. The human remains were found to be in a marginal state of preservation and so were disinterred en bloc with part of the soil matrix. The bone units were then submitted for forensic osteological analysis to Dr. Alton K. Fisher, working on behalf of the Office of the State Archaeologist. Under Fisher's supervision, Toby Morrow stabilized, cleaned, and analyzed all the bone available (refer to the results of the analysis in Appendix C). The conclusion reached was that the cranium of one individual, probably a male between 20 to 30 years of age at the

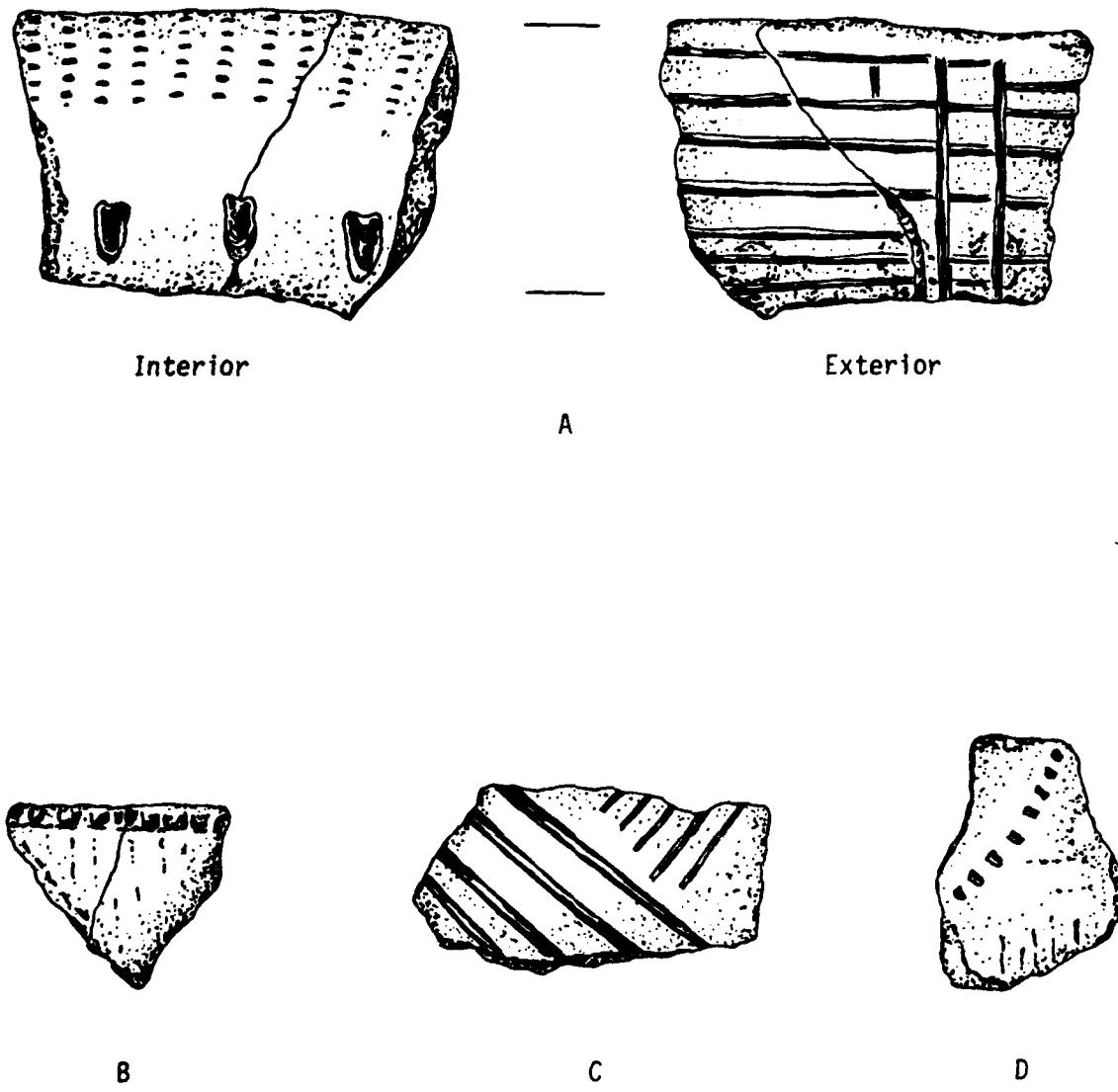
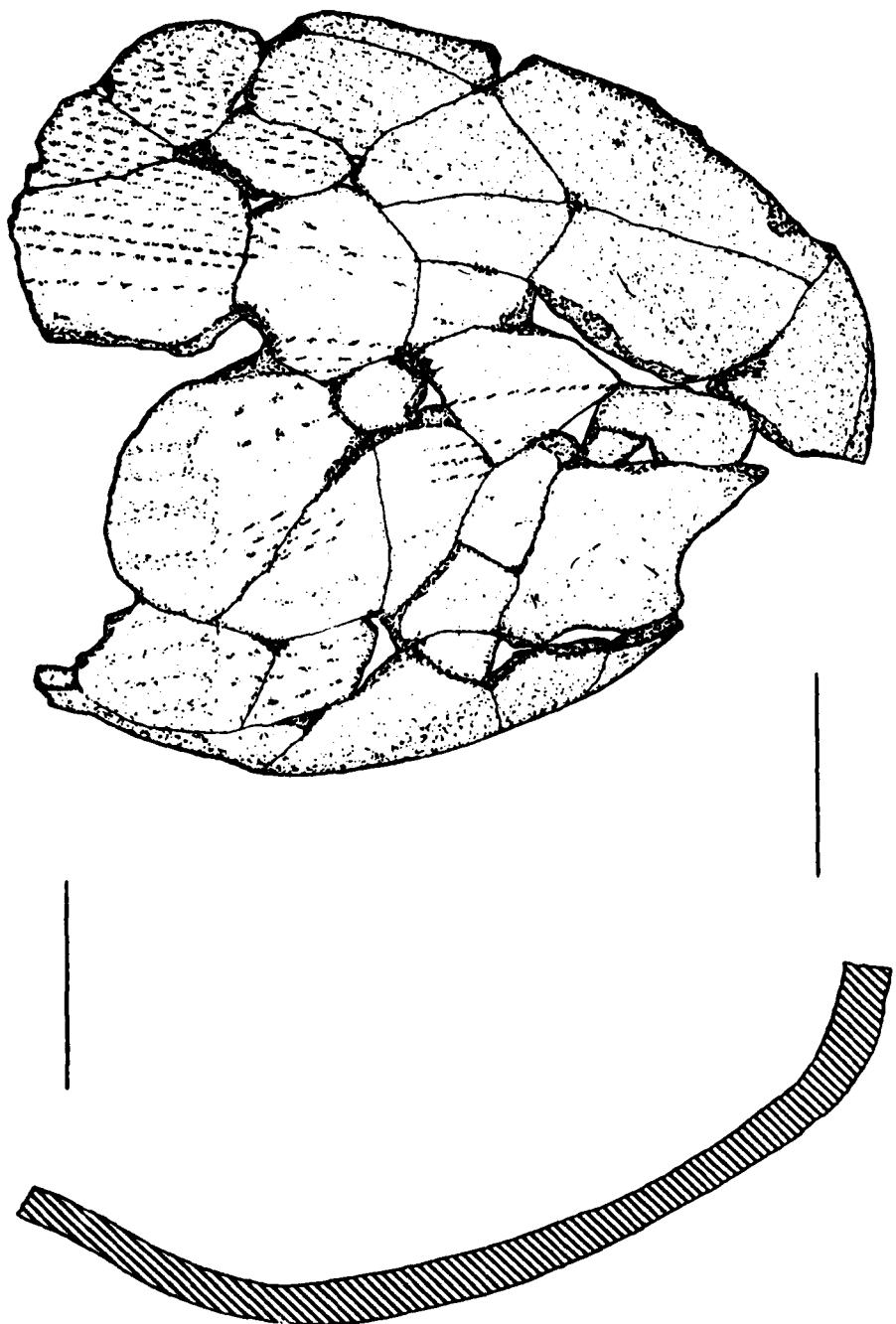


Figure 82. Selected Grit Tempered Ceramics from 13BN123. (A) Rim #196, with interior cord-wrapped stick impressions and punctations and exterior bosses with incised lines over faint cord roughening; (B) Thin cord roughened rim #206A, with tool impressed lip; (C) Body sherd #186, with incised lines over smoothed surface treatment; (D) Lower rim segment #318, with interior punctuation and exterior boss and dentate stamping. D is from a depth of 0.2-.04 ft. (6-12 cm.) within Test Square N1195/W1105; all the rest are from the machine-graded surface. Actual size

time of his death, was present in Bone Units A and D (refer to Figure 81). It is thought that a second individual might be represented by the cranial fragments from Bone Unit C. Assuming this to be the case then, Feature 3 appears to have been a secondary burial containing solely the crania of two persons. No grave goods were found within the burial pit. However, a small to medium-sized conical grit tempered vessel with smoothed-over cord-roughened surface treatment, found just outside the burial pit, is thought to be associated with the burial (refer to Figure 81 and Figure 83). Water flotation of the sandy feature fill collected after the bones had been removed produced only three fragments of the same as-yet unidentified charred seed, plus some minute pieces of cancellous bone tissue which are undoubtedly from the human remains. Scattered pottery and other cultural detritus were found within the general cultural zone surrounding the burial, suggesting that interment had taken place within or very near to the domestic encampment; careful investigation of the area around the burial has revealed nothing to suggest that it is part of a larger cemetery.

The prehistoric ceramics from the graded surface, from the cultural zone exposed by testing in 1974, and from the portion of the cultural zone tested under the present contract make up the bulk of the artifact inventory from 13BN123. The ceramics from the site are generally consistent with Middle Woodland ceramic assemblages described for some of the other Priority I sites tested within the Saylorville Lake project, in particular 13BN27, 13BN30, 13BN38, and 13BN182. Most of the cord roughened rims are decorated only by interior punctations and exterior bossing and may be classified as Havana Cordmarked (cf. Griffin 1952: 101-104). Fine dentate stamping occurs on a few rim and/or neck sherds (e.g. Figure 82, D). There are, however, a few sherds present at 13BN123 which may be attributed to the Spring Hollow Incised ceramic type (e.g. Figure 82, A and C). As such, this occurrence along with the thin finely-executed rim shown in Figure 82, B, suggest that the occupation of 13BN123 may have been toward the late end of the Middle Woodland period (cf. Logan 1976: 171). Vessel configuration, based on the reconstructed lower portion of the pot found just outside Feature 3 (shown here in Figure 83), is conical with some constriction at the neck. This particular vessel had been positioned upright within the cultural deposits and action by earthmoving machinery had evidently caught and removed only the rim portion. No definite pieces of the rim of this particular vessel were found in the cultural deposits surrounding the pot. Size of the granite tempering material varies from one vessel to the next -- in some sherds it is massive (up to 2 mm. or greater) while in others it resembles sand particles. Thickness and relative hardness of the sherds also vary considerably, but not necessarily in direct proportion to the size of the tempering grains used. The most common surface treatment employed is cord roughening, although smoothed-over cord roughened and entirely smoothed surfaces are also exhibited; combining of the exterior vessel surface with a finely-toothed or serrated tool is noted on at least three body sherds.

Figure 83. Reconstructed Conical Vessel Associated with Feature 3 at 13BN123. Specimen #155, with cross-section. The surface treatment is smoothed-over cord roughening. Shown 7/10ths actual size



In addition to ceramics, among the prehistoric artifact classes present in the inventory from 13BN123 is that of chipped stone tools such as two projectile points (Figure 84, A and B), a retouched flake/scraper, a graver or reworked point tip (Figure 84, C), two retouched flakes, and several utilized flakes. The notched projectile point types are those which should be expected in a Woodland tool assemblage (cf. Alex 1980: 125; McGregor 1958: 110-115). Ground stone is represented by one anvil stone, and in the unworked stone category are small nodules of hematite and limonite. Lithic source materials and debitage, although not abundant, are present as shatter and chert waste flakes, as well as three obsidian flakes. Potential construction material is in evidence as two pieces of fired clay or daub. Faunal remains consist of one bird limb bone and portions of two unidentified mammal teeth from the graded surface. Plant remains include the unidentified charred seed from Feature 3, as well as samples of wood charcoal. Some of this charcoal was submitted for radiocarbon assay.

The presence of the obsidian flakes is particularly significant, since obsidian found in archaeological contexts in the prairie-plains region is generally treated as evidence for long distance trade into the Rocky Mountain area. As discussed for site 13BN30, where three other obsidian flakes were recovered, the possession of obsidian is a recurring trait noted in Hopewellian sites, even those well away from the classic Hopewell centers in Ohio and central Illinois. The three flakes from 13BN123 were submitted for petrological and chemical analysis to Fred W. Nelson of A & G Analyses of Provo, Utah, and the results (presented here in Appendix C), like those for 13BN30, show that the origin of all three flakes is the Obsidian Cliff Source in Yellowstone National Park, Wyoming. Not only does this discovery serve as evidence for some degree of interaction between the inhabitants of 13BN123 and contemporaneous peoples living in or near that specific region of the Rocky Mountains, but it also suggests that there were definite links between the inhabitants of 13BN123 and those at 13BN30.

As noted above, some of the charcoal collected from site 13BN123 during emergency investigations there was submitted in 1976 for radiocarbon assay. The date received was A.D. 1010 ± 60 (WIS-906); however, the reliability of this date is in question because only 3 grams of pure carbon were available for the run. This date is far too recent given the associated Middle Woodland and transitional Middle-to Late Woodland ceramics from the site. Radiocarbon assays of charcoal from two refuse pits within a Middle Woodland component at the Sparks site (13BN121), located just one mile (1.6 km.) southwest of 13BN123, produced dates of A.D. 280 ± 55 (WIS-630) and A.D. 350 ± 55 (WIS-517). These latter dates fall within the range expected for this occupation at 13BN123. Although there are no diagnostic materials to indicate it, the A.D. 1010 date could relate to Great Oasis activities which have been documented at the Meehan-Schell site (13BN110). This site is also one mile (1.6 km.) southwest of 13BN103, and there three radiocarbon dates run on charcoal from storage pits clustered around A.D. 975 (Gradwohl 1974: 97).

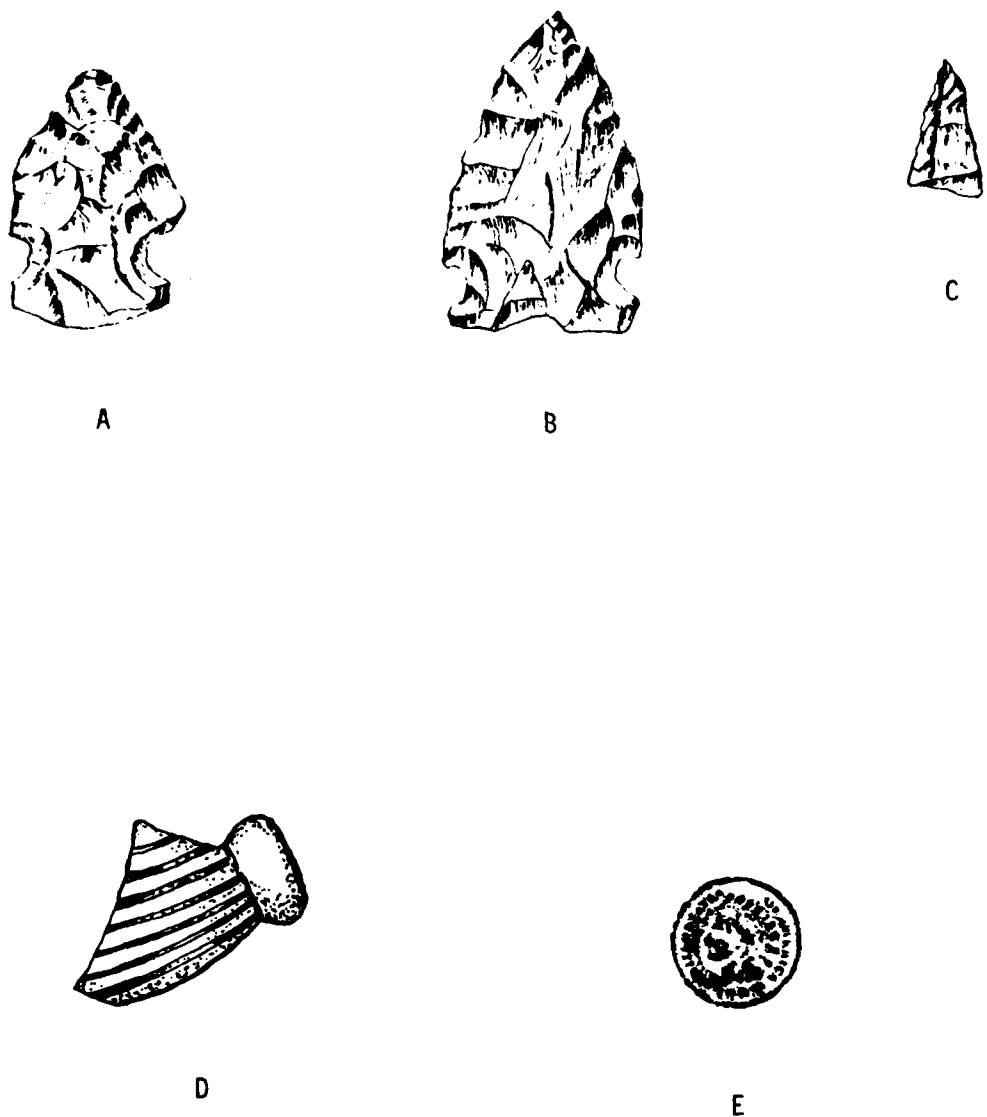


Figure 84. Selected Prehistoric Chipped Stone Tools and Historic Artifacts from 13BN123. (A) Side notched projectile point #121, (B) Corner notched projectile point with slightly concave base #214, (C) Projectile point tip and/or graver #215, (D) Molded stoneware pipe bowl segment #212, (E) 1905 Indianhead penny #85. E is from the surface of the plowed field in 1969; all the rest are from the machine-graded surface. Actual size

The historic materials collected from the site's surface since 1969 reflect the use of the area by Euro-Americans in the late nineteenth and early twentieth centuries. A domestic farmstead, removed in the 1970s after acquisition of the land by the Federal Government, once formed the northern limit of the site, and in the early 1900s an amusement park had been located on the Des Moines River on or near the site (Personal communication: Jack Miller, formerly of Boone, Iowa and now deceased). Fragments of ironstone china; stoneware milk bowl, crock, and jug parts; a kaolin pipe bowl (Figure 84, D) and a stoneware pipe fragment; an iron kettle fragment; a 1905 Indianhead penny (Figure 84, E); pieces of tin cans, wire, nails, and other miscellaneous metal; and a glazed brick chunk all can be attributed to one or both of these occupations.

Impacts of the Saylorville Lake Project on Site 13BN123

The field in which site 13BN123 lies had been under cultivation for several years prior to its acquisition for the Saylorville Lake project. When the site was discovered in 1969, very little trace of the prehistoric occupation which lay below the surface was found on the plowed ground along with the copious historic material (refer to the discussion above of previous investigations at the site). This suggests that farming practices had not significantly disturbed the underlying Woodland cultural deposits. It was only after archaeological monitors, checking the progress of construction of the Riverbend Boat Launch and recreational satellite, discovered prehistoric cultural materials and features being exposed in the machine cuts that the presence of the Woodland occupation at the site was fully demonstrated. And by that time much of the cultural zone had already been destroyed.

In addition to the blatantly destructive impact of recreational development already accomplished at the site, another direct adverse impact from the operation of Saylorville Lake is expected since 13BN123 is located within the flood control pool of the lake. Flooding will occur there whenever the waters are allowed to rise above 865 feet elevation, and wave action along the temporary shorelines will erode away what may remain of the shallowly-buried cultural deposits. A secondary impact over which there is even less control is the concentrated public use of the area: Any cultural artifacts exposed on the surface may be collected and carried off for personal use or enjoyment, thus removing such items from the public domain for future study or interpretive display. In addition, there is reason to believe that some cultural deposits associated with 13BN123 may yet exist to the west of the county gravel road within a cultivated field now under Federal control. The western portion of this field is presently being quarried for gravel (refer to Plate 26) and expansion of this commercial operation to the east of the present quarry may endanger these cultural resources.

Recommendations for Further Work at Site 13BN123

At this time it appears that little more archaeological investigation is merited at site 13BN123 given the amount of destruction which has taken place there during recreational development. The only restriction on this recommendation is that, should further development activities take place at the site, an archaeological monitor must be on hand to check for any additional human skeletal remains which might have been buried there and were not detected in the archaeological testing program. This same recommendation applies if expansion of the gravel quarrying operation is contemplated in the vicinity of the site.

13BN168

Environmental Context of Site 13BN168

Site 13BN168 is located on a low riverine terrace and a portion of the adjacent floodplain above the left bank of the Des Moines River within Boone County, Iowa (see Figure A-28). This locus is within a narrow sweeping bend of the Des Moines River directly across the river channel from the mouth of Noah Creek (refer to Figure A-29). The site's position lies between 875 and 883 feet above mean sea level and covers an area of 4 to 5 acres (1.5 to 2 hectares). The site is bounded on the north and south by the channels of the Des Moines, on the east generally by the lower break in slope with the uplands, and on the west by the wooded point bar adjacent to the river. This lowland field has been continuously subjected to cultivation during the historic period and is presently sown to row crops with some bands of switchgrass interspersed for wildlife management purposes.

The primary soil on which the site occurs has been mapped as Hanlon fine sandy loam, 0-2% slopes. Other soils in the site area include Buckney fine sandy loam, 1-3% slopes, Dickman fine sandy loam, 1-5% slopes, and Spillville loam, 0-2% slopes (USDA Soil Conservation Service 1981: 12, 26, 30, 58, 61, 74 and Sheet 46). The Hanlon series is derived from loamy alluvium, and the other soils were developed from loamy and sandy alluvium and eolian sands. All are moderately well drained. During soil development the native vegetation is thought to have been forest or forest mixed with prairie species.

Previous Investigations at Site 13BN168

Site 13BN168 was located and designated by personnel from the Iowa State University Archaeological Laboratory on 31 May 1975 during the intensive survey of Reconnaissance Unit 14, part of a larger reconnaissance program for the upper Saylorville Lake project area funded by the U.S. Army Corps of Engineers - Rock Island District. Dry surfacing conditions hampered collection; however, a projectile point fragment, three grit tempered body sherds, an end scraper and other chipped stone tool fragments, a core fragment, waste flakes, pecked stone, unworked bone and shell, and historic ceramics, glass, and iron were collected from the surface over a wide area of the field. Continued checks a few days later after a rain produced additional grit tempered pottery, a corner notched point base,

more non-diagnostic chipped stone tool fragments, core fragments, shatter, and waste flakes, plus burned and unburned bone, three teeth--two of which appear to be human, and additional historic domestic debris. All the data thus far gathered for 13BN168 were presented to the Corps with the recommendation that the site be tested to determine the nature and extent of the components represented (Gradwohl and Osborn 1976: 104-105).

Numerous visits were made to the site between the spring months of 1976 and 1980 to locate additional diagnostic materials and to pinpoint the limits of the site on the basis of surface collection. Generally, materials were found to be most concentrated in two areas-- one along the northern terrace escarpment and the other along the terrace edge to the south within the western two-thirds of the field. The number of additions made to the artifact inventory during this time was fairly impressive and included a grit tempered rim with boss and punctuation, one body sherd with incising over cord roughening, several cord roughened sherds, a small plain triangular point, end scrapers, bifaces and other chipped stone tool fragments, a broken diorite celt, lithic debitage, burned and unburned bone, and more historic materials including two pipe bowl fragments (refer also to Table 13).

Statement of Research Objectives for Site 13BN168

On the basis of diagnostic artifacts collected from the surface of 13BN168 since 1975 it appeared that the site might contain more than one prehistoric cultural component -- one of Middle Woodland cultural affiliation and potentially a second of Late Woodland or post-Woodland assignment on the basis of the small triangular point form. It is hoped the site might provide significant information as to the interface of the earlier component with the later one, a relationship not yet clearly defined in archaeological contexts and one which is alluded to in more than one of the formal research questions posed for the Saylorville region. A Middle Woodland component could conceivably provide data which would allow comparisons between this occurrence and the Middle Woodland components with Havana-Hopewell affinities known elsewhere in the central Des Moines Valley such as 13BN30, 13BN38, 13BN123, and 13BN182. In addition, since Late Woodland manifestations are not yet widely known within central Iowa, the possibility of documenting such an occurrence here could shed light on the relationships between Late Woodland components located elsewhere in the state with one located in a geographically intermediate position. Should the small triangular point form be an indicator of an extant post-Woodland (ie. Great Oasis or Oneota) component, then material culture traits which distinguish such manifestations from those of Late Woodland cultural assignment might be isolated.

PREHISTORIC ARTIFACTS

Ceramics

	Total	Materials Collected Prior to Testing	Materials Collected During Testing	Surface (cultivated field)	Ap or Plowzone and Unsifted Trench Fill	Cultural Zone Within A3/B1/B21t Soil Horizon (0.9-2.2 ft.; 27-67 cm.)	Feature 1 - Probable Hearth or Roasting Pit 1.2-2.8 ft. (37-85 cm.)
Decorated Woodland rim/body segments (Havana Ware and/or Linn Ware)	6	3	3	4	1	1	-
Undecorated or cord marked grit tempered vessel fragments (including one conical base sherd)	65	26	39	54	7	4	-
Daub or burned earth	6	-	6	-	-	6	-

Chipped Stone

Medium-sized corner notched projectile points	2	1	1	2	-	-	-
Small plain triangular projectile points	2	2	-	2	-	-	-
End scrapers	3	3	-	3	-	-	-
Graver/perforators	6	3	3	6	-	-	-
Thin bifaces (including point segments)	12	8	4	10	-	1	1
Thick bifaces	3	1	2	1	-	-	2
Retouched flake/scrapers	5	2	3	3	-	1	1
Retouched flakes	15	8	7	14	-	1	-
Utilized flakes	73	47	26	69	2	1	-

Chipped Stone Source & Waste Material

Cores and core fragments	14	6	8	12	-	2	-
Shatter chunks	51	37	14	47	2	2	-
Waste flakes	276	209	67	259	5	8	4

Ground Stone

Pecked stone cobbles	3	1	2	3	-	-	-
Celt fragment	1	1	-	1	-	-	-

Unworked Stone Source Material

Hematite	4	2	2	4	-	-	-
Angular granite chunks	5	-	5	-	-	5	-
Sandstone	1	-	1	-	-	-	1

HISTORIC ARTIFACTS

Ceramics

Porcelain & ironstone vessel fragments	14	13	1	14	-	-	-
Stoneware vessel fragments	208	203	5	207	1	-	-
Stoneware pipe fragments	2	1	1	2	-	-	-
Tile & brick fragments	3	1	2	2	1	-	-

Glass

Clear, blue, & milkglass container fragments	5	4	1	4	1	-	-
Milkglass preserve jar lid liner fragment	1	1	-	1	-	-	-

Metal

Iron cut nails	3	1	2	3	-	-	-
Miscellaneous iron & brass fragments (including a lamp part, a chain link & knife handle)	6	3	3	5	1	-	-

ECOLOGICAL MATERIALS

Medium-sized corner notched projectile points	2	1	1	2	-	-	-
Small plain triangular projectile points	2	2	-	2	-	-	-
End scrapers	3	3	-	3	-	-	-
Graver/perforators	6	3	3	6	-	-	-
Thin bifaces (including point segments)	12	8	4	10	-	1	1
Thick bifaces	3	1	2	1	-	-	2
Retouched flake/scrapers	5	2	3	3	-	1	1
Retouched flakes	15	8	7	14	-	1	-
Utilized flakes	73	47	26	69	2	1	-
<u>Chipped Stone Source & Waste Material</u>							
Cores and core fragments	14	6	8	12	-	2	-
Shatter chunks	51	37	14	47	2	2	-
Waste flakes	276	209	67	259	5	8	4
<u>Ground Stone</u>							
Pecked stone cobbles	3	1	2	3	-	-	-
Celt fragment	1	1	-	1	-	-	-
<u>Unworked Stone Source Material</u>							
Hematite	4	2	2	4	-	-	-
Angular granite chunks	5	-	5	-	-	5	-
Sandstone	1	-	1	-	-	-	1
HISTORIC ARTIFACTS							
<u>Ceramics</u>							
Porcelain & ironstone vessel fragments	14	13	1	14	-	-	-
Stoneware vessel fragments	208	203	5	207	1	-	-
Stoneware pipe fragments	2	1	1	2	-	-	-
Tile & brick fragments	3	1	2	2	1	-	-
<u>Glass</u>							
Clear, blue, & milkglass container fragments	5	4	1	4	1	-	-
Milkglass preserve jar lid liner fragment	1	1	-	1	-	-	-
<u>Metal</u>							
Iron cut nails	3	1	2	3	-	-	-
Miscellaneous iron & brass fragments (including a lamp part, a chain link & knife handle)	6	3	3	5	1	-	-
ECOLOGICAL MATERIALS							
Mammal bone, tooth, & antler fragments (including deer, elk, cow and/or bison, horse, pocket gopher, and rodent)	23	11	12	17	1	2	3
Fish bone	1	1	-	1	-	-	-
Calcined bone fragments	36	15	21	24	4	2	5
Unidentifiable bone & tooth fragments	48	10	38	15	5	20	8
Freshwater mussel shell fragments	22	5	17	5	-	12	5
Wood charcoal samples	12	-	12	-	2	5	5
HUMAN OSTEOLOGICAL REMAINS							
Teeth	2	2	-	2	-	-	-
	939	631	308	796	33	74	36*

*does not include materials found by flotation

Table 13. Tabular Summary of Archaeological Materials Recovered from Site 13BN168. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.

One major objective of investigating 13BN168 at this time, then, is to identify the components which remain intact at the site, to check to see if any deeply-buried components not yet represented in the surface artifact inventory are present, and to recover as many additional diagnostic artifacts as possible so that these might be compared with Woodland and later components already defined at other sites within the central Des Moines Valley. One particular emphasis would be the collection from primary contexts of any available plant and animal remains, both domesticated and wild, to help to reconstruct the environments within which the prehistoric inhabitants of 13BN168 had lived -- yet another avenue of inquiry presented by the research questions. The potential for locating such important ecofactual data at 13BN168 seems good based on the presence of bone and shell on the site's surface. Although not specifically addressed by the research questions posed for the region, significant historic data reflecting early Euro-American settlement of the valley would be sought and collected for future comparative purposes.

Statement of Methodology at Site 13BN168

Following the proposed strategy for the site, a transect of soil probes was taken at 13BN168 in mid October of 1980. Eight solid soil cores 2 inches (5 cm.) in diameter were procured with a truck-mounted hydraulic probe along a northeast/southwest alignment across the terrace surface and down onto the floodplain at the point at which one of the areas of surface artifact concentration had been noted (see Figure 85). On the advice of the soil scientist, Thomas Bicki, the probes were not spaced evenly but were taken at intervals varying between 150 and 400 ft. (46 -122 m.) depending upon the portion of the landform to be sampled. The probes were carried to depths up to 8 ft. (244 cm.) or until sterile sand was encountered. The location of each probe hole was mapped using a transit and stadia.

A decision was then made to establish a second transect of probes which would connect the southern area of surface collection with that on the northern terrace escarpment. This was done in a manner similar to that used in the first transect, taking six more soil cores (see Figure 85). The first transect had confirmed that the entire terrace surface had been bisected by the river and the resulting channel had then been filled in by recent sediments. The westward terrace segment sampled by the second transect revealed consistent soil development there without further major riverine cutting and without any buried surfaces in the soil profile. It was noted, however, that the nature of the soil nearest the terrace escarpments--both on the northern and southern edges of the terrace--would allow cultural features, if present, to be most readily identified in those positions (refer to Appendix C).

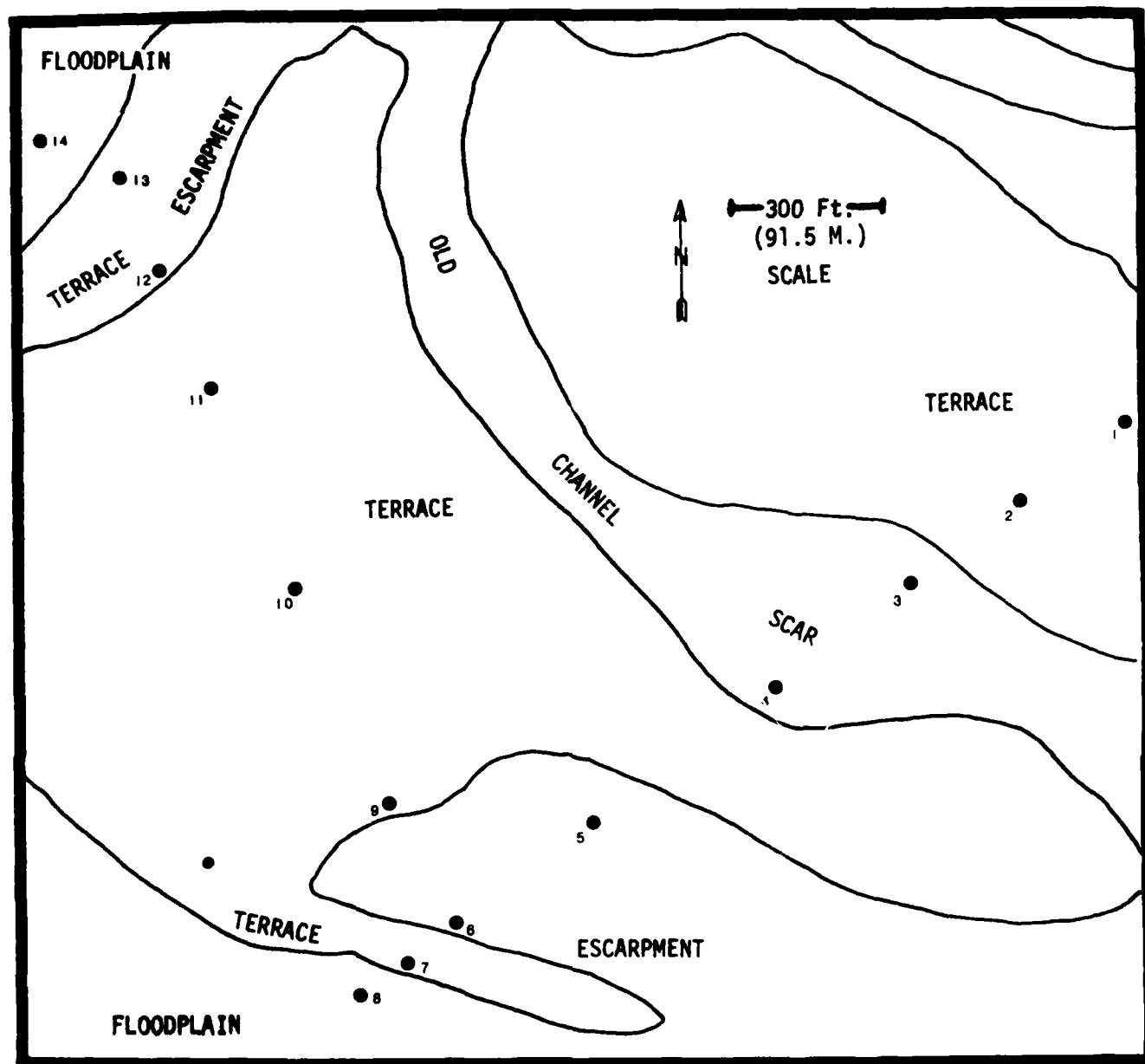


Figure 85. General Geomorphology and Placement of Soil Probes at Site 13BN168

On this basis, then, testing was resumed in late April and early May of 1981 at 13BN168. The probes had shown that little more significant soils information was likely to be gained by placing backhoe trenches across the center of the terrace surface, a plan proposed in the original field strategy. Therefore, backhoe trenching was confined to each of the two areas of surface artifact concentration identified at the site (refer to Figure 86). In the northern area Trenches #1, 2, and 3 were established along an interrupted north/south alignment spanning 350 ft. (107 m.) on the terrace surface and over the terrace escarpment. Each was 2 ft. (61 cm.) wide and ranged in depth from 3.8 to 4.5 ft. (116-137 cm.), although one portion of Trench #1 was extended as deep as 8.5 ft. (259 cm.). The terrace soil profile analyzed by soil scientist Donald Wysocki showed as one deeply-developed solum; however, an unconformity occurs on the terrace escarpment at a depth of 1.5 ft. (46 cm.) which is interpreted to be the result of mixture by soil slumping. Two additional trenches, oriented east/west, were placed to the south and east of the first alignment to sample the terrace contact with the filled-in channel scar. The profile of Trench #4 was found to be similar to that exposed in Trench #3, and, as was expected, the profile within Trench #5 was characterized by recent alluvium. No cultural materials were seen in any of the trench fill removed or in the profiles exposed.

To sample the potential for locating clusters of artifactual and/or ecological data in horizontal profile immediately below the plowzone, a machine scrape was made on the terrace surface between Trenches #1 and 3, exposing a 1500-square-ft. (161-square-m.) area to the base of the plowzone. This surface was then shovel skinned clean by hand. Cultural materials recovered here from the mixed fill of the plowzone include three grit tempered body sherds, one utilized flake, and one waste flake, as well as historic items such as a salt glazed stoneware sherd decorated with cobalt blue stencil and a brass lamp fitting. From undisturbed fill immediately below the plowzone contact came two additional prehistoric cord roughened body sherds and another waste flake. However, no evidence for cultural features could be seen. For further control three hand-dug test units, each 5 ft. (1.5 m.) square, were placed in the vicinity of Trenches #1 and 2 and Scrape #1 (see Figure 86). The fill from each was screened through 1/2-inch mesh hardware cloth screens as digging proceeded. From the plowzone of Test Square #1 came one waste flake as well as a fragment of historic field tile, a piece of clear glass, and a bone identified as a horse phalange. From the plowzone contact to a depth of 1.7 ft. (52 cm.) in apparent primary context were collected one cord roughened rim with evidence of an interior punctuation (Figure 88, B), two cord roughened body sherds, a thin biface (Figure 90, D) a retouched flake, a chert core, one piece of quartz shatter, two waste flakes, six pieces of burned sand or daub, a tooth fragment identified as that of white-tailed deer, a small sample of wood charcoal, and five chunks of angular granite. Test Square #4 produced four cord roughened body sherds and a piece of chert shatter from the plowzone, but no materials were found below the zone of disturbance. Nothing of cultural significance was recovered in Test Square #5 on the terrace escarpment.

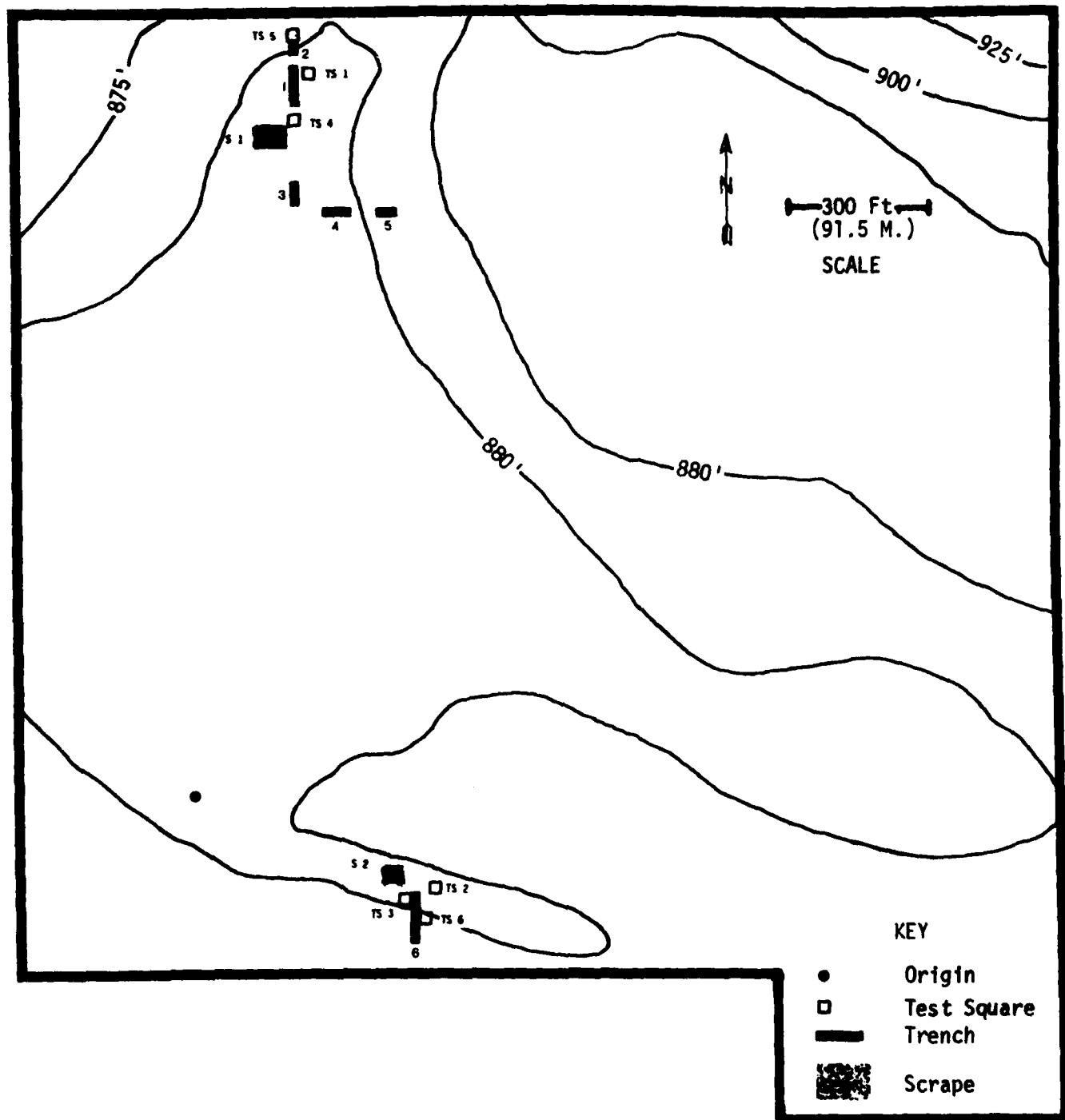


Figure 86. Placement of Trenches, Horizontal Scrapes, and Test Squares at Site 13BN168

Meanwhile, analogous procedures were implemented on the southern portion of the terrace (refer to Figure 86). There Trench #6 was oriented north/south from the terrace surface and through the terrace escarpment to the floodplain for a length of 110 ft. (36 m.). This trench was 5 ft. (152 cm.) deep over most of its length but was extended to a depth of 5.5 ft. (168 cm.) at the south end. On the terrace surface the soil profile was found to be well developed with a somewhat complex B soil horizon (refer to Appendix C). As on the northern terrace escarpment, the interface of the southern terrace margin with the floodplain exhibits considerable mixing from slump material. From the trench wall at a depth of 3 ft. (92 cm.) were recovered four unidentified bone fragments, and three freshwater mussel shell fragments were found at a depth of 5 ft. (152 cm.). One utilized flake was located within the backdirt after trenching had been completed.

Midway along Trench #6 on the sloping terrace surface a basin-shaped soil stain was noted in the trench's eastern wall (see Figure 87). Within the matrix of this stain could be seen charcoal, ash, burned earth, some mussel shell fragments, and bits of bone. The upper limit of this stain, designated Feature 1, lay just below the top of the B soil horizon at 1.2 ft. (37 cm.) below the ground surface and extended at its lowest point to 2.8 ft. (85 cm.). From the soils data at hand it was determined that the feature's orifice definition had not been disturbed after soil development had taken place and that the top of the feature probably coincides with the approximate ground surface at the time the pit had been open.

To discover the extent and context of Feature 1 with controlled excavation techniques, a 4 x 6 ft. (1.3 x 2 m.) test unit was placed adjacent to Trench #6 and was dug by hand shovelling and screening until the pit orifice was reached in horizontal profile. Cultural materials were present within the test unit above the feature. Here the plowzone produced one cord roughened body sherd, a piece of chert shatter, a basalt flake, and two pieces of calcined bone. Within apparent primary context from the plowzone contact to the top of the feature at 1.2 ft. (37 cm.) were found three waste flakes, four small pieces of calcined bone, thirteen unidentified bone fragments, two pieces of mussel shell, and some wood charcoal. Feature 1 was then excavated by trowelling in arbitrary 0.2 ft. (6 cm.) levels for control purposes and all fill was bagged for water flotation processing in the laboratory (Plate 28). Items recovered from the feature during excavation include a thin biface (Figure 90, C), two thick biface fragments, one retouched flake/scraper, one utilized flake, four waste flakes, a fragment of an elk molar, twelve bone fragments of which five are burned, one phalange fragment unidentified as to species, the scapula and humerus of a Plains pocket gopher, five pieces of mussel shell of which three are burned, and five

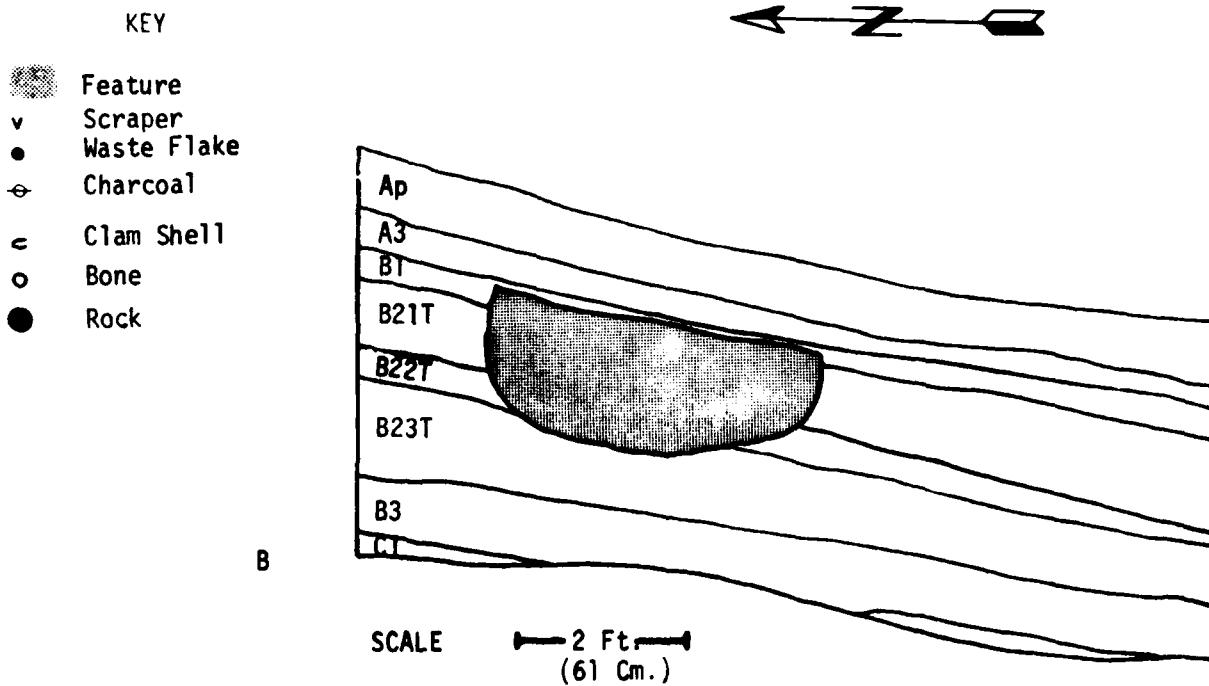
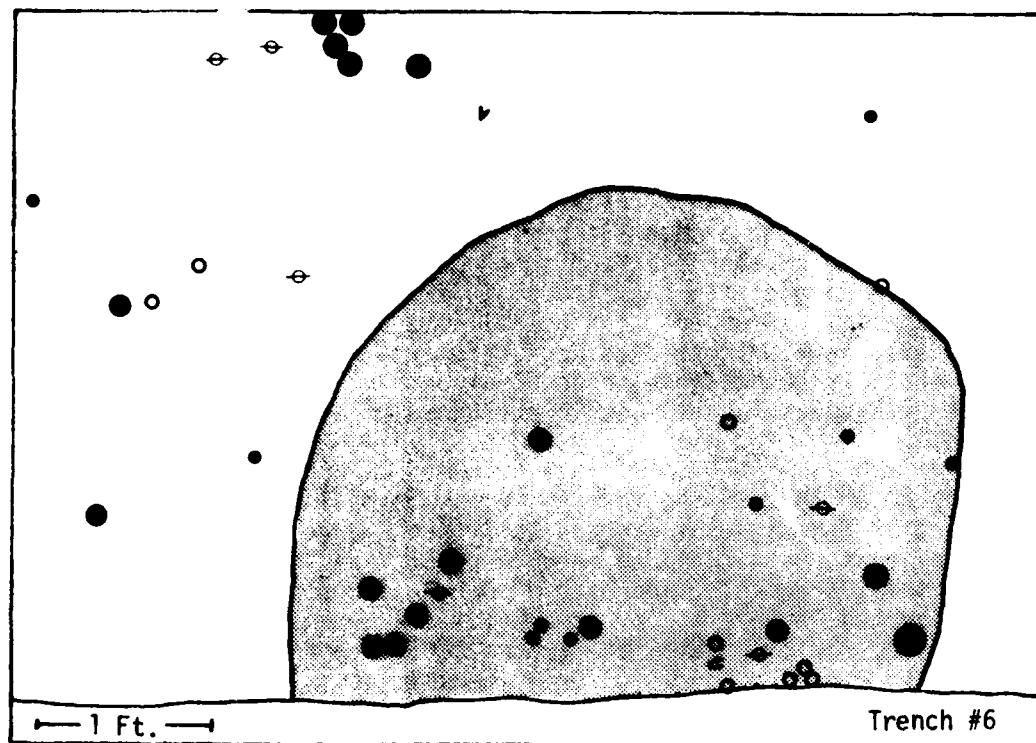


Figure 87. Profiles of Feature 1, a Hearth-Like Pit, at Site 13BN168. (A) Horizontal plan and distribution of artifacts within the feature as defined within Test Square #6. Items shown occurred between 1.2-2.2 ft. (37-67 cm.) below the surface. Note that the western portion of the feature has been truncated by Trench #6. (B) Position of the feature in vertical profile in the east wall of trench, shown with the described soil profile



Plate 28. Excavation in Progress of Feature 1, a Hearth-Like Pit within Test Square #6 at Site 13BN168. All fill from the feature was bagged for water flotation processing in the laboratory. View is to the north

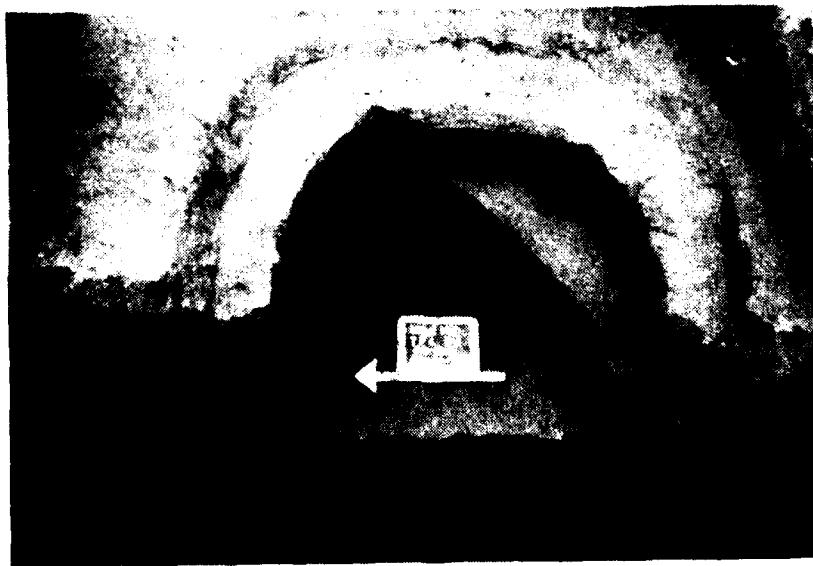


Plate 29. Feature 1 at Site 13BN168 after Excavation of the Feature Was Completed. View is to the east

small samples of wood charcoal. Angular granite chunks and cobbles and a piece of sandstone were also present. The feature appears to have been a pit at least the upper portion of which had been used as a hearth. On completion of excavation of the pit (Plate 29), it was found to have a total internal depth of 1.6 ft. (49 cm.). The rest of Test Square #6 was then shovelled and screened to the depth of the base of the feature. Some additional materials were found between 1.2 and 1.8 ft. (37-55 cm.) including a retouched flake, a piece of utilized shatter, two waste flakes, four bone fragments of which one is calcined, a tooth identified as bovid, and six fragments of mussel shell.

Two other test squares were dug in the same vicinity (refer to Figure 86). Test Square #2 was dug to a terminal depth of 2.2 ft. (67 cm.) by shovelling and screening but produced only one waste flake between 1.4 and 1.8 ft. (43-55 cm.). Test Square #3, adjacent to the northern end of Trench #6, was dug to 3 ft. (92 cm.) but again only one waste flake was recovered, this time just below the plowzone contact. A horizontal scrape with the machine blade of 900 square ft. (96 square m.) was made to the base of the plowzone immediately northwest of Test Square #3. The scrape was then cleaned off by shovel skimming; however, no feature definitions or artifacts were uncovered in this area. Since the farmer-lessee was in the midst of spring planting while the tests were being conducted, additional surface materials were available for collection from the freshly-worked ground. From the northern terrace edge these include one body sherd with incising over cord roughening, nineteen cord roughened body sherds, a grit tempered base sherd, one corner notched projectile point (Figure 89, B), a thin biface (Figure 90, C), two graver/perforators, a retouched flake/scraper, nine utilized flakes, a quartzite core, five pieces of chert shatter, ten waste flakes, an unidentified tooth fragment, one piece of unworked hematite, plus a historic metal table knife handle and square cut nails. From the southern terrace edge were gleaned one cord roughened body sherd, a graver/perforator, five retouched flakes, nine utilized flakes, three core fragments, six pieces of shatter, thirty-two waste flakes, a piece of unworked hematite, two pecked diorite cobbles, two teeth--one of which is of white-tailed deer and the other of cow or bison, one unidentified tooth fragment, and eleven unidentified bone fragments of which nine are calcined. From the plowed surface in the center of the field between the two areas were found one utilized flake and a waste flake.

Results of Testing at Site 13BN168

The results of the archaeological tests conducted at 13BN168 under this contract show that a prehistoric cultural zone does exist in at least two specific loci on the terrace surface on which the site was designated. The potential for deeply-buried cultural zones below this one is unlikely

in this position on the terrace. The cultural deposits which are extant show a fair amount of soil accumulation without obvious breaks, signalling that either a single occupation had lasted at the site for an extended period or that there were rapid successive occupations over a period of several years. This band of deposits is at least 1.1 ft. (34 cm.) thick and corresponds generally with the B soil horizon. Where these deposits are exposed on the terrace margins by erosion and soil slumping, artifacts are turned to the surface by plow action; however, just beyond the terrace edge and onto the terrace surface these cultural remains appear to be largely undisturbed. On the basis of soils analysis it seems unlikely that prehistoric occupation would be found to have spanned the entire terrace surface but rather was relegated to positions primarily toward the outer rim of the terrace.

The nature of the data gathered thus far at 13BN168 shows it to be a domestic encampment at which flintknapping, hunting and fishing, hide working, and preparation of food were all part of the activities practiced there. The only structural evidence isolated during testing is a hearth-like pit-- Feature 1-- in which scattered wood charcoal, ash, and burned earth were found interspersed with rocks and other cultural debris. Water flotation of the pit fill produced innumerable bits of burned bone, rodent-gnawed bone fragments and some fish vertebrae, tiny rodent bones and teeth, burned and unburned flakes of mussel shell, many land snail shells, hackberry seeds and a few smaller unidentified charred seeds, and small chert pressure flakes.

Diagnostic materials from the two areas of concentration at the site point to a Woodland cultural affiliation, possibly transitional from Middle to Late Woodland. The ceramics are grit tempered with generally cord roughened or smoothed-over cord roughened exteriors. The one vessel base available suggests that the vessel shape was probably conical. Examples of rim forms in the ceramic inventory at this site are limited. Those available (see Figure 88, A and B) are upright and carry a circumferential line of interior punctations. Lower rim and/or body decoration is seen in the form of incising over cord roughening (e.g. Figure 88, C) and one example of rocker or tool stamping (Figure 88, D). The characteristics available for study in these ceramics would fit into either Middle Woodland or transitional Woodland assemblages (cf. Benn 1980: 5, 42-52; Logan 1976: 109-110); certainly those ceramic traits which would suggest post-Woodland affiliations are absent at 13BN168. The two corner notched projectile points (Figure 89, A and B) from the surface are consistent with types expected in a Woodland context (cf. Ritzenthaler 1967: 28-29); the plain triangular point form (eg. Figure 89, C) from the surface, on the other hand, is probably an isolated occurrence since no other distinctive Late Woodland or post-Woodland materials are available from the site inventory.

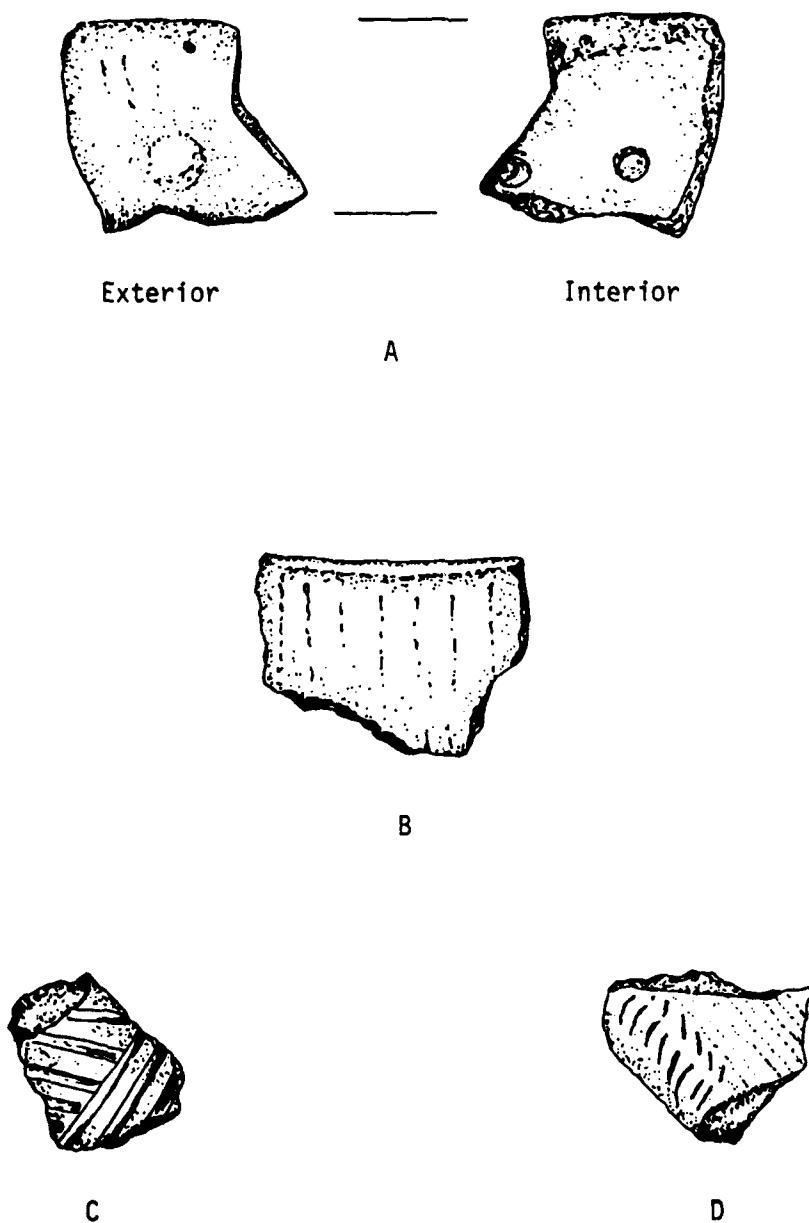


Figure 88. Selected Grit Tempered Ceramics from 13BN168. (A) Smoothed-over cord roughened rim #165, with interior punctuation and exterior boss; (B) Cord roughened rim #313; (C) Body sherd #243, with incised lines over cord roughening; (D) Body sherd #90, with faint rocker stamping over cord roughening. B is from the cultural zone within Test Square #1; all other specimens are from the surface. Actual size

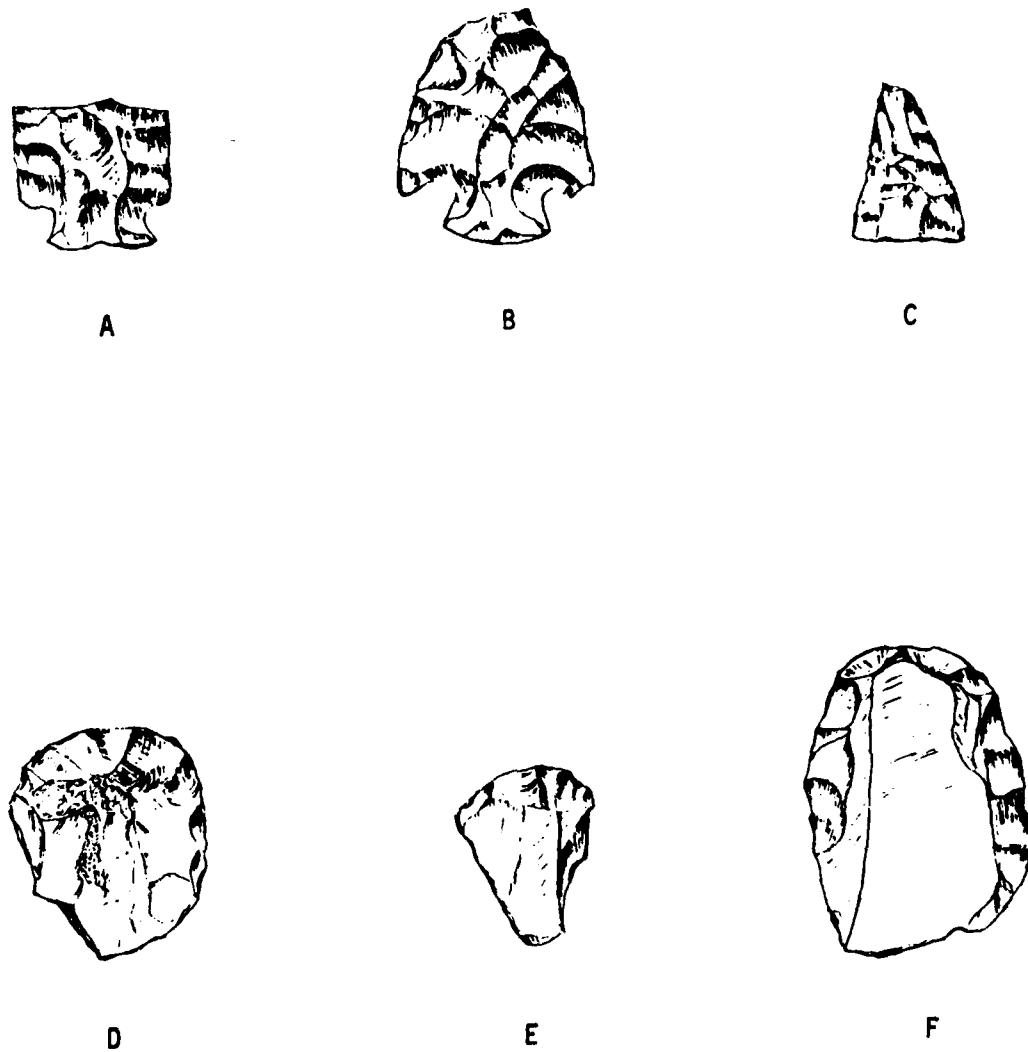


Figure 89. Projectile Points and End Scrapers from 13BN168. (A-B) Corner notched points #12 and 429, respectively; (C) Small plain triangular point #132; (D-F) End scrapers #134, 135, and 93, respectively. All are from the surface. Actual size

In addition to the ceramics, the classes of prehistoric material data collected from the site include chipped stone tools such as the projectile points already discussed; end scrapers (Figure 89, D-F); graver/perforators (e.g. Figure 90, A); retouched flake/scrapers (e.g. Figure 90, B); thin bifaces such as those shown in Figure 90, C-E; thick bifaces or preforms (e.g. Figure 90, F); retouched flakes; and utilized flakes. The source materials used in and the debitage resulting from the manufacture of such tools is found in relative abundance in the form of cores and core fragments, shatter, and waste flakes. Ground and pecked stone is present as a diorite celt (Figure 90, A) and two pecked diorite cobbles, one of which had served as an anvil and the other as a hammerstone. Unworked stone collected includes a few nodules of hematite.

Potential for the preservation of faunal remains is reasonably good at the site given the large amount bone available from the limited tests. In addition to the numerous small unidentified bone fragments, bone and teeth specimens from primary context which have been specifically identified include white-tailed deer (*Odocoileus virginianus*), American elk or wapiti (*Cervus canadensis*), Plains pocket gopher (*Geomys bursarius*), and probably bison (Bovidae). Freshwater mussel shells occur throughout the cultural deposit but the pieces are too fragmentary for specific identification. Plant remains are available as hackberry seeds (*Celtis reticula*), some smaller as-yet unidentified charred seeds, and fragments of wood charcoal. Unfortunately, the amount of charcoal available was not sufficient to run a reliable radiocarbon assay. The presence of the human teeth collected from the surface of the site is problematical. One is a definite adult molar and the other appears to be a very worn upper central incisor, although the piece is split longitudinally and is very fragmentary.

The site's major importance in terms of answering the archaeological research questions posed for the central Des Moines Valley probably lies in the availability of ecological data within the cultural deposits-- data from which the environment of the prehistoric past may be reconstructed. Additional diagnostic materials gathered by additional investigations, of course, would allow for further comparison with Woodland components defined at other sites in the region. The historic materials present apparently constitute a cultural veneer on the site's surface from early nearby Euro-American settlements in the valley such as the village of Moingona. In particular, the stoneware vessel fragments available from 13BN168 probably reflect debris scattered from the two stoneware industries which operated in Moingona in the 1870s (cf. Schroeder 1969).

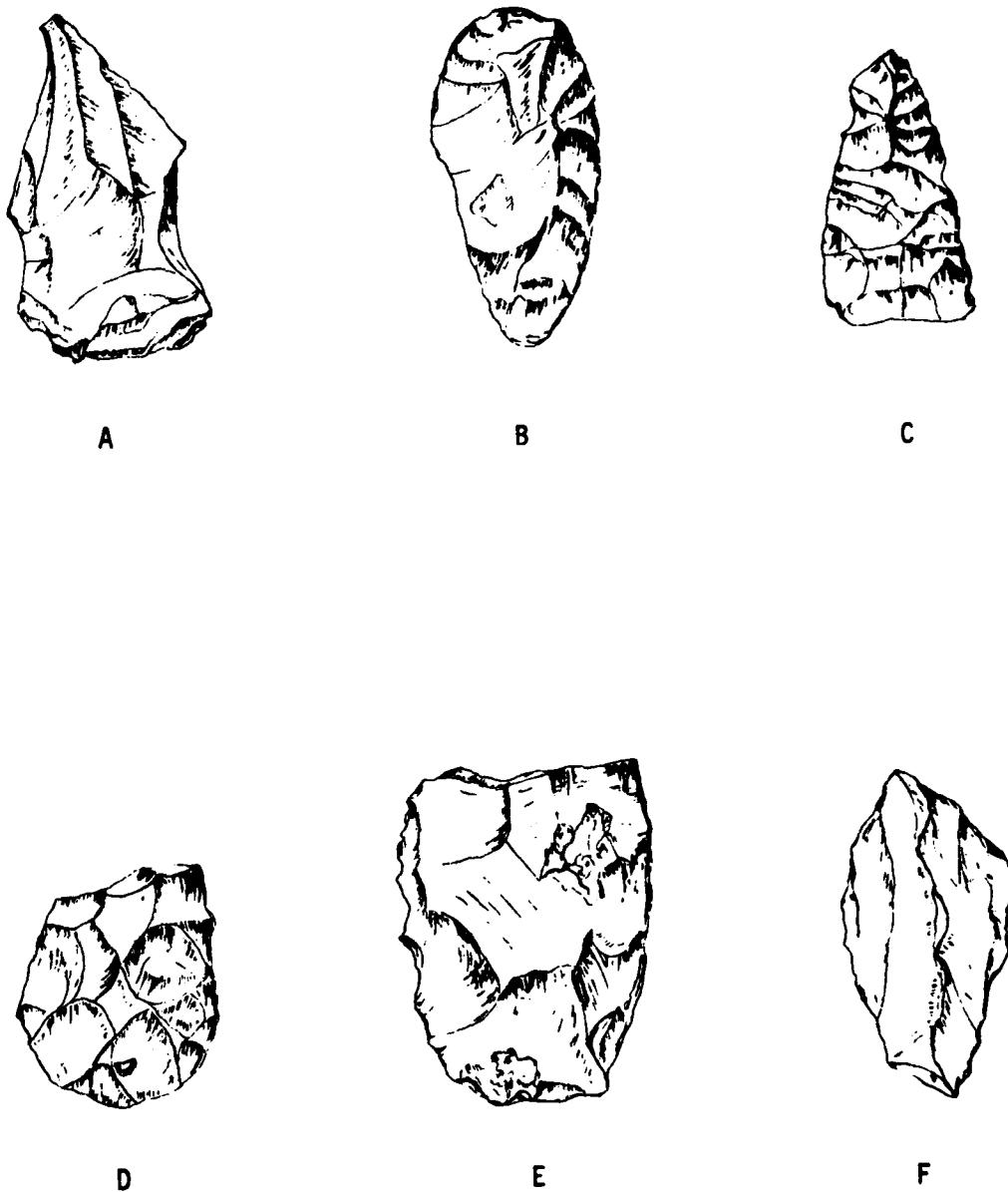
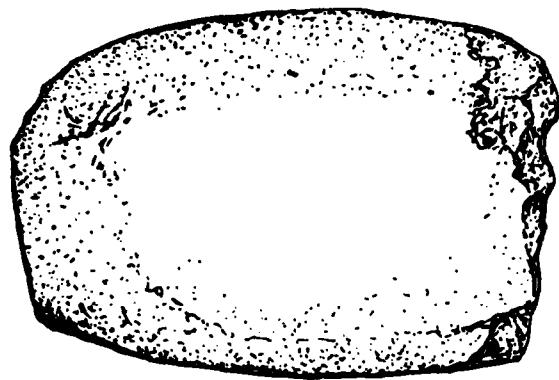


Figure 90. Selected Chipped Stone Artifacts from 13BN168. (A) Graver/perforator #250; (B) Retouched flake/scraper #14; (C-E) Thin bifaces #450, 314, and 355, respectively; (F) Thick biface #31. D is from the cultural zone within Test Square #1, E is from Feature 1, and all other specimens are from the surface. Actual size



A



B

Figure 91. Prehistoric Ground Stone and an Historic Pipe from 13BN168.
(A) Broken diorite celt #41, (B) Glazed stoneware pipe bowl
segment #248. Both are from the surface. Actual size

Impacts of the Saylorville Lake Project on Site 13BN168

The position of 13BN168 lies within the upper flood control pool of Saylorville Lake, which means that the site will undergo partial to total inundation any time the lake level is allowed to rise above 875 feet in elevation for flood storage. Soil slumping along the terrace margins has already been demonstrated to have occurred to some degree in the past prior to the inception of the Saylorville project. Now the wave action and rapidly fluctuating water levels of the lake during flooding will accelerate this attrition, destroying the cultural zone all along the terrace periphery.

Recommendations for Further Work at Site 13BN168

Additional archaeological investigation at site 13BN168 is highly recommended on the basis of the good potential there for recovering significant ecological data regarding the environmental conditions and natural resource base available to Woodland affiliation populations which inhabited and exploited the central Des Moines River Valley. For maximum data retrieval, future excavation should be concentrated on the north and south terrace margins. Power machinery could be used to strip the plowzone from above the *in situ* cultural deposits in the areas investigated. Water flotation of the fill from any culturally-derived features located during excavation is strongly suggested since this process has been shown to be efficacious during the present phase of investigation for the retrieval of ecofactual remains.

At some of the Woodland component sites tested under the present project which exhibit far better diagnostic material cultural remains than are yet known for this site, the potential for ecological reconstruction is not as well demonstrated as it is for 13BN168. Therefore, mutual benefit is likely to be gained by excavating a range of Woodland sites so that certain classes of data from one may be used to extrapolate pertinent information not available in another.

13BN182

Environmental Context of Site 13BN182

Site 13BN182 is located on a terrace remnant and associated floodplain above the right bank of the Des Moines River less than a kilometer south of the confluence of Bluff Creek with the Des Moines River in Boone County, Iowa (Figure A-30). This locus is immediately south of the Chicago and Northwestern high railroad bridge (refer to Figure A-31). The site's position lies between 875 and 890 feet above mean sea level and covers an area of 4 to 5 acres (1.5 to 2 hectares). The northern limit of the site is the fenceline between the cultivated field and a wooded pasture; a portion of the northward extent of the site lies on property owned by the Chicago and Northwestern Railroad. The site's eastern limit is an abandoned channel on the narrow floodplain, on the west is the base of the valley bluff slope, and the southern boundary is an intermittent drainageway which originates on the slope above the site. Cultivation of this lowland field has been continuous throughout the historic period and the site was in row crops at the time of archaeological investigation.

The soils on which the site occurs are mapped as Moingona loam, 1-5% slopes; Hanlon fine sandy loam, 0-2% slopes; and Buckney fine sandy loam, 1-3% slopes (USDA Soil Conservation Service 1981: 27-28, 30, 58, 63, 70 and Sheet 38). These soils are derived from slopewash and stream-borne alluvium and are moderately well to excessively drained. Based on the soils present native vegetation in the area was once trees or trees mixed with prairie species.

Previous Investigations at Site 13BN182

Site 13BN182 was located on 31 May 1975 by personnel from Iowa State University during the intensive archaeological survey of Reconnaissance Unit 17, part of a larger reconnaissance program for the upper Saylorville Lake project area sponsored by the U.S. Army Corps of Engineers-Rock Island District. Initially the survey team collected grit tempered ceramics such as a single-cord impressed rim (Figure 96, E), a tool-impressed body sherd, a sherd with cord-wrapped stick impressions, as well as cord roughened and smoothed body sherds. Lithic artifacts included a stemmed projectile point base (Figure 99, A), a notched point

segment (Figure 99, C), an end scraper (Figure 99, E), bifaces, and retouched and utilized flakes. Lithicdebitage was present in the form of shatter and waste flakes. Historic domestic debris -- ironstone, stoneware, bottle glass, and an iron spike -- were also collected for the inventory. The data gathered for the site was reported to the Corps with the recommendation that it be tested to determine the nature and extent of the one or more prehistoric cultural components present (Gradwohl and Osborn 1976: 223-224).

Further collections were made at the site from the spring of 1976 through spring of 1980 in an attempt to gather additional culture-specific information. These visits greatly increased the artifact inventory with an abundant amount of grit tempered cord roughened pottery, many pieces of which are rim sherds decorated with punctations, nodes, dentate stamping, incised lines, cord-wrapped stick impressions, or combinations of these design elements characteristic of Middle Woodland with Hopewellian affinities to late Middle Woodland ceramics. Though not as numerous as the ceramic pieces, stone artifacts such as a corner notched point (Figure 99, B), some additional chipped stone tools, and a ground axe or celt fragment (Figure 100, A) were also found, along with more lithic debitage. Some complete bones from the surface may be identified and include those of white-tailed deer, raccoon, rabbit, bird, fish, and a bovid; the presence of freshwater mussel shells was also noted.

Statement of Research Objectives for Site 13BN182

Directly east of the location of 13BN182 and across the Des Moines River lie the remains of a Middle Woodland-Hopewell mortuary structure -- the Boone Mound (13BN29) -- and its associated Middle Woodland village (13BN30). The latter site was also tested under the present contract. It is felt that 13BN29/13BN30 may have served as a "center" for interaction between various Middle Woodland groups which occupied the central Des Moines Valley over a period of several hundred years (refer to the earlier discussion in this report of 13BN30). On the basis of the ceramic types collected from the surface of 13BN182 since 1975 as well as the site's proximity to 13BN30, it is hypothesized that those persons who had settled at 13BN182 in prehistoric times would likely have had close ties with the Middle Woodland village just across the river. Following the research question regarding the Middle Woodland Hopewell interaction sphere in central Iowa, one of the archaeological objectives at 13BN182 was to test this hypothesis and to check for definite indications of a shared material culture between the two sites as well as with other Middle Woodland components in the region. If such comparative data are available, then information may also be available regarding settlement size and settlement pattern in the Middle Woodland period -- aspects of life during that era which are not yet well known.

Evidence for horticulture is another of the research questions to be addressed. Although it is assumed that horticulture played a role in the economic lives of Middle Woodland peoples, the evidence for this assumption is not yet well documented in Iowa. There, particular attention would be paid toward recovering data which could support or clearly substantiate this assumption.

It must first be verified that an extant Middle Woodland cultural zone has survived at 13BN182. Concomittantly, it must be ascertained whether or not any components other than that represented in the surface collections also exist as deeply-buried deposits below the site's surface. One specific focus of the research at 13BN182 would be to discover the potential for recovery of sufficient ecofactual data to expand the present knowledge of the environment as it was experienced within the Des Moines Valley in the prehistoric period.

Statement of Methodology at Site 13BN182

Although site 13BN182 is located on Federal property, land access into the area is controlled by a private landowner. Testing of this Priority I site was contingent upon receipt of permission for entry across this private property. Even though the Rock Island District of the U.S. Army Corps of Engineers was unable to procure the necessary written entry agreement from the landowner (refer to the pertinent correspondence dated 25 August 1980 and 3 September 1980 in Appendix I), personnel from the Iowa State University Archaeological Laboratory were able to secure access privileges to the site on their own after negotiating with the property holder involved.

Therefore, soil probing for the purpose of archaeological testing was begun in the second week of December 1980 after the corn crop was harvested from the field. On the advice of the soil scientist, Thomas Bicki, the original plan of a probing grid was abandoned in favor of two intersecting transects of more-closely spaced probes across the major land features present (refer to Figure 92). These were solid soil cores each 2 inches (5 cm.) in diameter which were taken with a hydraulic probe mounted on a truck. The first transect was located on the terrace and spanned the length of the terrace and part of the terrace escarpment in a north/south alignment. This included thirteen probes spaced at intervals varying from 50 to 110 ft. (16-36 m.). The second transect was oriented east/west across the terrace and spanned the valley floor from the footslope of the valley wall, across the terrace surface, and down onto the floodplain. This included ten probes spaced at intervals of 25 to 50 ft. (8-16 m.). All probe hole locations were mapped with a transit and stadia. Initial soils analysis showed that a mantle of recent slopewash has covered the terrace surface, directly overlying a band of much older slopewash, the A12 soil horizon (refer to Appendix C). The slopewash deposited during the historic

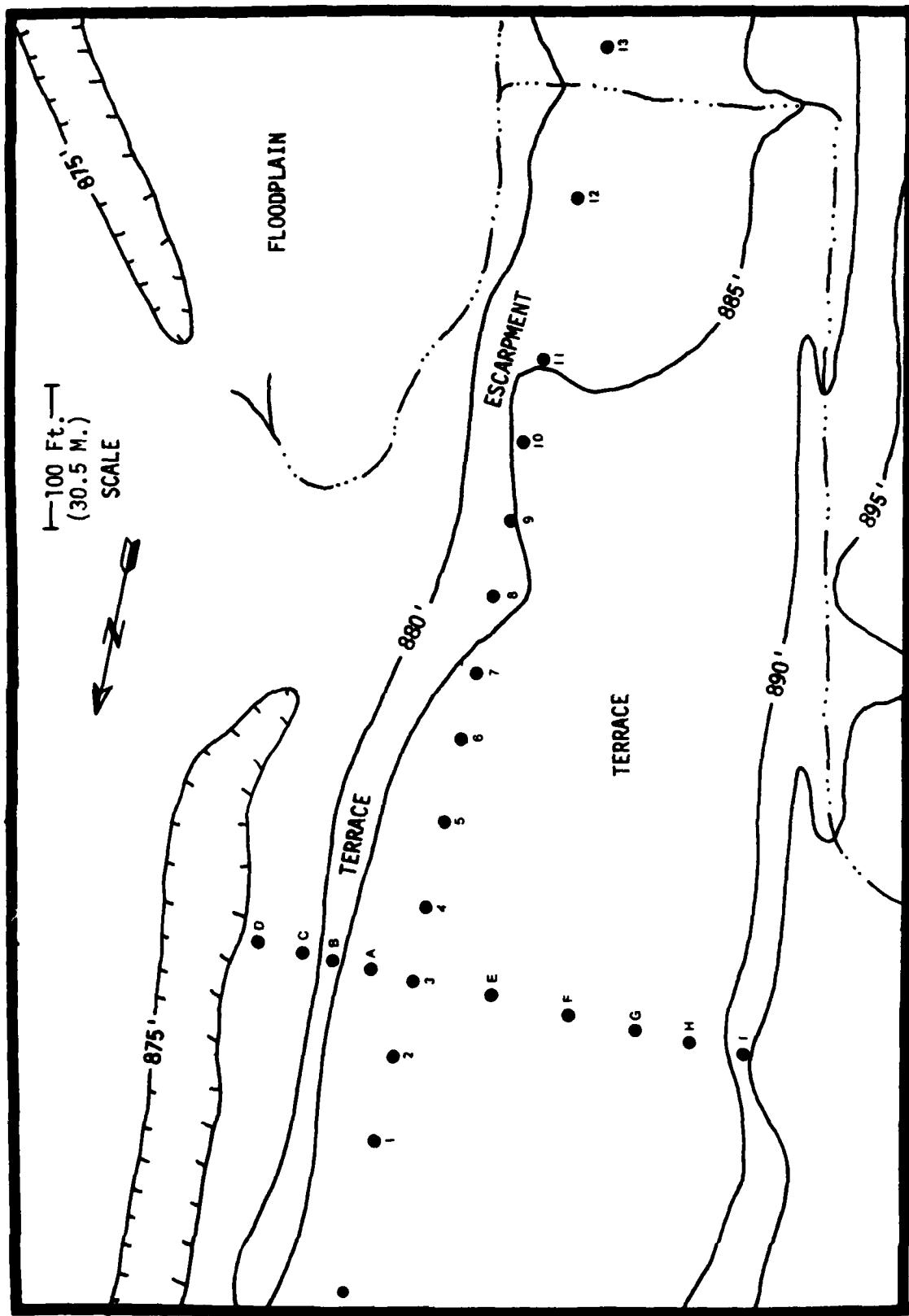


Figure 92. General Geomorphology and Placement of Soil Probes at Site 13BN182

period is thickest at the footslope but on the terrace surface this recent overwash deposit is thin enough to be incorporated entirely into the plowzone. Despite the fact that the probes were taken to a depth of 7 ft. (217 cm.), no buried soil surfaces were discerned in the alluvial fill of the terrace. It was not until a trench was dug through the terrace escarpment that such buried paleosols were discovered, and even then these could be seen with any clarity only toward the escarpment where organic matter is more thoroughly leached away (refer to Appendix C). The general pH level of the soil here tested a neutral reaction, giving reason to assume good potential preservation of any cultural and ecofactual remains which might be present.

Tests at 13BN182 were resumed on 31 March 1981. Largely on the advice of the soil scientist testing was initiated with the excavation of one long backhoe trench, Trench #1, which was placed on an east/west alignment through the terrace escarpment at its widest, most gently sloping point -- an area from which many artifacts had been collected on the surface in the past (refer to Figure 93). This trench was 2 ft. (61 cm.) wide and 110 ft. (36 m.) long and was between 5.5 and 5.7 ft. (168-174 cm.) in depth over most of that length. The vertical profile exposed showed two distinct paleosolic bands buried below the recent slopewash-covered A12 horizon and separated from it and from each other by the more lightly-colored and leached soil layers resulting from soil development associated with each paleosol surface (refer to Figure 94). Within the northern wall of the trench were also exposed two concentrations of burned earth, ash, and charcoal flecking -- the first associated with Paleosol 1. These concentrations were designated, respectively, Feature 1 and Feature 2. As the vertical profile was followed in the trench wall up onto the more stable position of the terrace surface the definition of these paleosols became less distinct, masked by soil development which is less disrupted here by erosion -- a degradational factor which is strongly in effect from the terrace shoulder to the floodplain.

Trench #2 was then placed on the crest of the terrace shoulder and was aligned perpendicularly to Trench #1 at a point immediately west of the location of Features 1 and 2 (refer to Figure 93). This trench was 40 ft. (13 m.) in length and 5 ft. (152 cm.) deep and exposed soil strata analogous to those found in Trench #1. Cultural materials and faunal remains were recovered from along the walls of both trenches as these were cleaned off by hand trowelling. Found in association with the A12 horizon, in addition to Feature 1, was a vessel rim with internal punctations, external nodes, and exterior decoration of incised lines over cord roughening (Figure 98, A) and adjacent to it a body segment bearing incised-line decoration over cord roughening (Figure 98, B). Five additional grit tempered body sherds, three small fragments of bone,

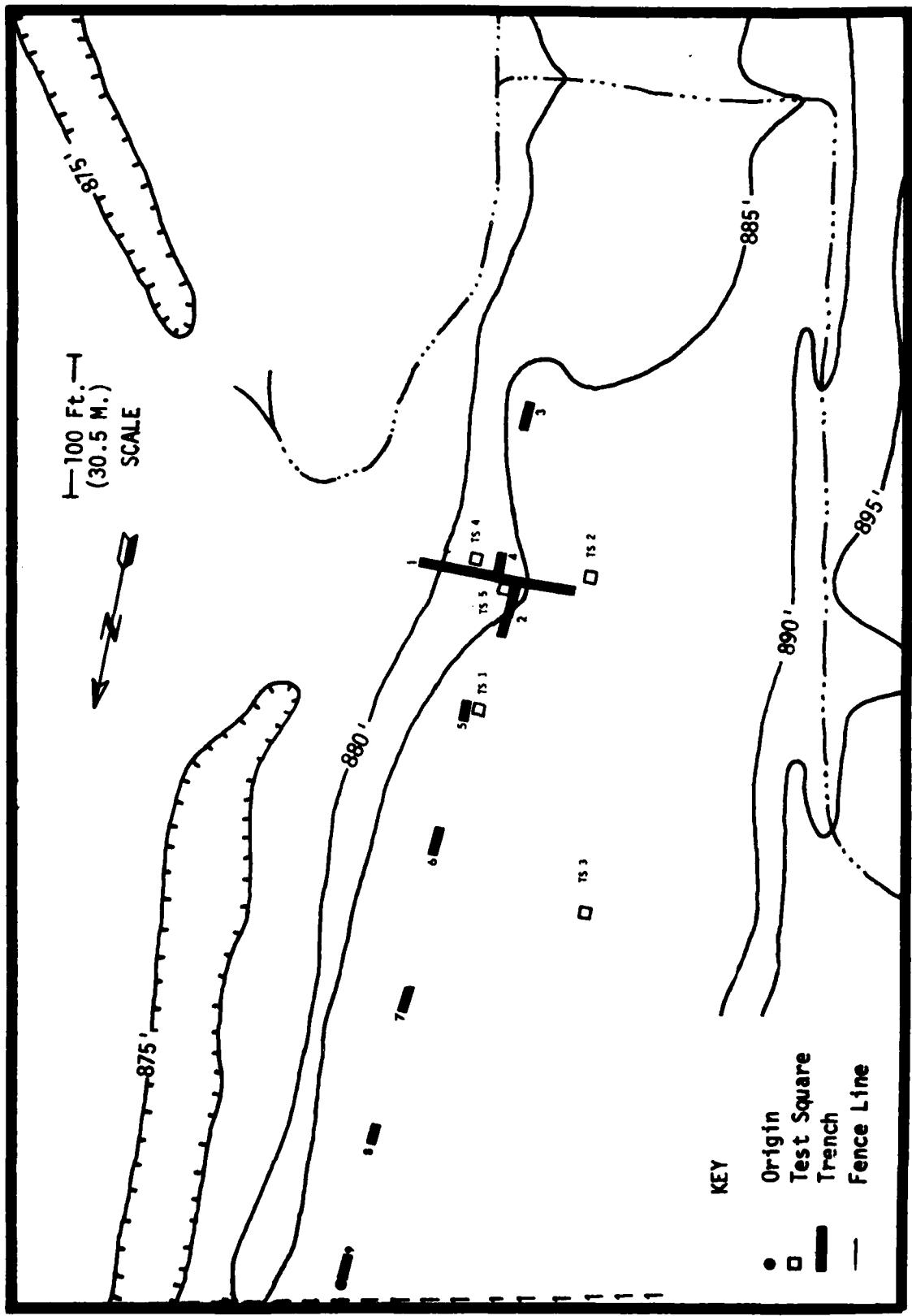


Figure 93. Placement of Trenches and Test Squares at Site 13BN182

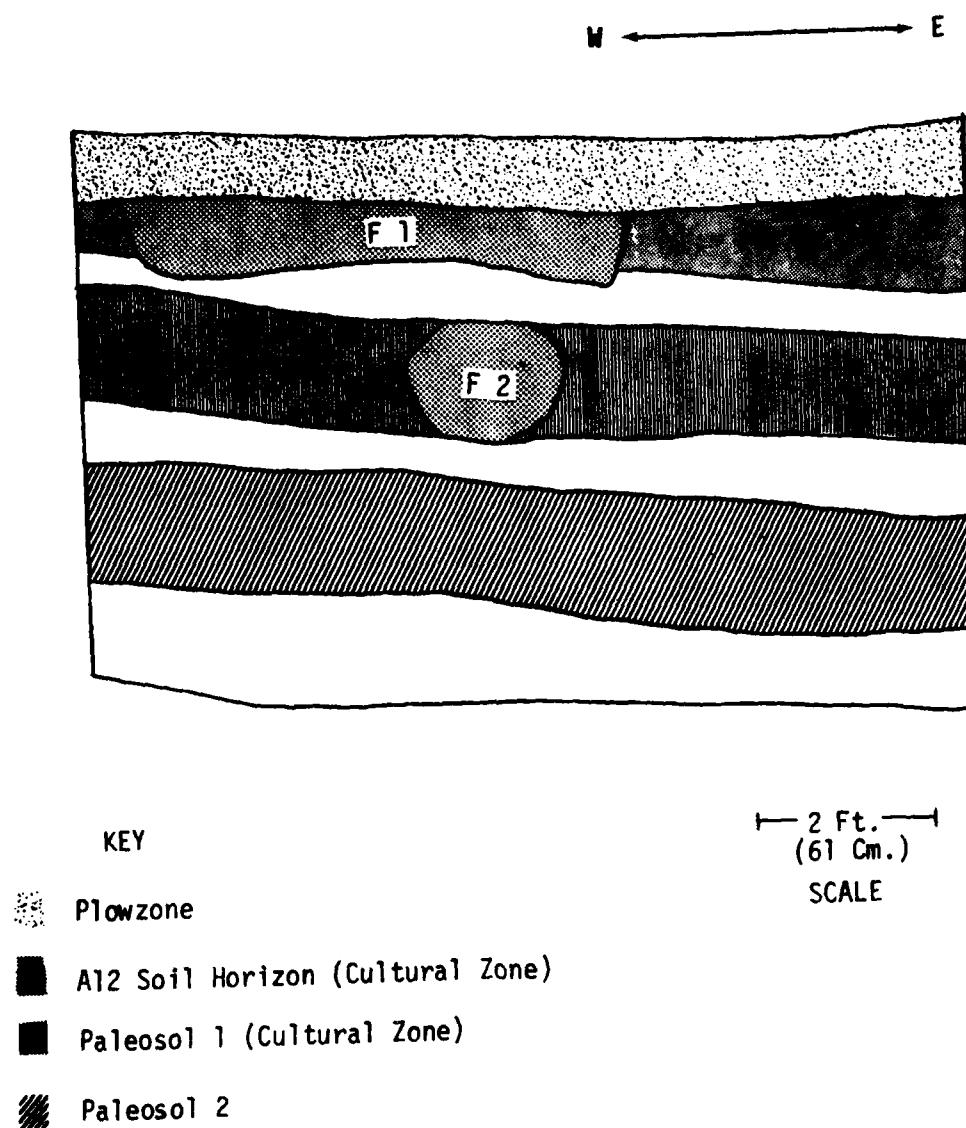


Figure 94. Generalized Vertical Profile within the Northern Wall of Trench #1 at Site 13BN182, Showing the Positions of Features 1 and 2 and the Soil Horizon Boundary Relationships. The intervening white bands correspond to the leached strata separating the buried surfaces

four mussel shell fragments, and a small sample of charcoal were also gathered from this level. Paleosol 1, beyond the presence of Feature 2, produced a cord roughened rim/shoulder segment (Figure 96, D), a fragment of a second cord roughened rim, a smoothed body sherd, one waste flake, two teeth from white-tailed deer, four small bone bits, a land snail shell, and a chunk of granite. Apparently each of these two buried surfaces carry associated cultural deposits, the date of the lower deposit being separated from the upper by a period of time sufficient for soil development to have occurred. Nothing of cultural significance was noted or retrieved from Paleosol 2, the lowermost of the two paleosols (see Figure 94).

To quickly sample for the horizontal extent of the cultural zones along the length of the terrace, an alignment of seven short interrupted backhoe trenches was established to extend both north and south of the Trench #1/Trench #2 complex (see Figure 93). Each was 15 to 20 ft. (5-6.5 m.) in length and was taken to a depth between 3 and 3.5 ft. (92-107 cm.). Materials found during machine excavation were limited. A small fragment of bone was recovered from the backdirt of Trench #4, located near Trench #1, after excavation was completed. Within Trench #5, the first sampling unit north of the larger trench complex, material located consisted of a phalange epiphysis identified as that of a young white-tailed deer plus two other pieces of bone, all from the plowzone contact. From the backdirt taken from Trench #7 was recovered a dentate stamped rim fragment (Figure 95, C). The boundaries of the paleosols became less distinct to nonexistent in vertical profile as sampling moved away from the Trench #1/Trench #2 complex. Also, evidence of the recent disturbance created by the mechanical burial of abandoned wells, feeder pipelines, and a telephone relay substation near the center of the field began to show up in the trenches in the form of broken concrete chunks, some rotting wood, metal pieces, and sand deposits. This disturbance is apparently sporadic but widespread, and the portion of the field north of and including Trench #6 appears to have suffered the most disruption.

Since successively buried cultural zones were demonstrated in the walls of Trenches #1 and 2, a decision was made not to conduct a horizontal machine scrape in this area but rather to expend effort on a more controlled testing technique for gaining horizontal information from the area within which the two features had been noted in vertical profile. One test unit 8 x 4 ft. (2.6 x 1.3 m.) was established at the intersection of Trenches #1 and 2 and directly over both features. In the meantime, four additional hand-dug test units, each 5 ft. (1.5 m.) square, were scattered over the central field area as a horizontal check on the information gotten via the probes and trenches (refer to Figure 93). These units were shovelled by hand and the fill was sifted through 1/2-inch mesh hardware cloth screens. Test Square #1 was placed beside Trench #5 and was dug to a depth of 1.5 ft. (46 cm.) at which

point testing was halted because of the large chunks of concrete, wood, a piece of glass, tin can fragments, and other metal present to that depth and below. Test Square #3, centrally located on the flat terrace surface west of Trenches #6 and 7, ran into similar evidence of recent disposal at a depth of 1.1 ft. (34 cm.) and below. Test Square #2 was established on the terrace surface beyond the western end of Trench #1. Here the fill to a depth of 1.3 ft. (40 cm.) was gravelly and mottled, indicating that the unit lay on top of a pocket of recent slopewash accumulation. Only one small eroded grit tempered body sherd was recovered from the base of the plowzone here. Test Square #4 was placed on the terrace escarpment between Trenches #1 and 4. There the uppermost of the two cultural zones is exposed to the surface by plow action. On the surface near the test unit was found a dentate stamped rim (Figure 95, A); six grit tempered sherds, a turtle carapace fragment, and two mussel shell fragments were collected from the plowzone. From primary context between 0.6 and 1.5 ft. (18-46 cm.), in the remnant of the cultural zone associated with the A12 soil horizon, were recovered one body sherd with incising over cord roughening, one cord roughened body sherd, three smoothed body sherds, six molar fragments from white-tailed deer, one land snail shell, and a small piece of wood charcoal. Controlled testing within this unit was concluded in the sterile deposits separating the two cultural zones.

The plowzone was quickly shovelled and screened from Test Square #5, the larger test unit containing the two features. This zone of disturbance produced eighteen grit tempered body sherds, one of which has incising over cord roughening, two of which bear punctations, and another which is dentate stamped. One retouched flake (Figure 99, H), nine bones of which one is a deer phalange and two of which are a vertebral fragment and a sesamoid bone of unknown species, eight mussel shell fragments, and a chunk of concrete were also found within the plowzone. Hand trowelling to define the limits of Feature 1 in horizontal profile was done quickly, after which the feature was excavated by trowelling in arbitrary increments of 0.2 ft. (6 cm.), during which materials encountered were mapped and the fill was collected for water flotation processing in the laboratory. The feature was first distinguished as an area of mottled soil staining within which were ash, burned earth, and chunks and small flecks of charcoal in concentration, plus bone and mussel shell fragments (Plate 30). The fill also produced ceramics including one rim with fine dentate stamping, punctations, and nodes (Figure 95, B); one smoothed rim with cord-wrapped stick impressions (Figure 96, B); one smoothed body sherd with zoned dentate stamping (Figure 97, B); a smaller dentate stamped sherd; a body sherd with incised lines over cord roughening; twelve cord roughened body sherds; and seven smoothed sherds. Other cultural detritus found in the feature include two utilized flakes and six waste flakes. Faunal and plant remains collected during excavation are one mandible and four



Plate 30. Feature 1, a Concentration of Charcoal Flecking, Ash, Burned Earth, and Cultural Detritus, Defined in Horizontal Profile at the Flowzone Contact within Test Square #5 at Site 13BN182. The feature was first exposed in vertical profile during the machine excavation of Trench #1 and is shown here after the upper 0.4 ft. (12 cm.) of fill had been removed. View is to the east

other bones of white-tailed deer, one turtle plastron fragment, forty pieces of unidentified bone, fifty-nine calcined bone fragments, sixty-two mussel shell fragments of which eleven are burned, two land snail shells, two charred nut shell fragments identified as black walnut, and wood charcoal. After coring, the feature outline formed a shallow squared oval roughly 5.7 ft. (174 cm.) east/west and 0.9 ft. (27 cm.) deep (refer to Figure 94). The north/south dimension was only 2.9 ft. (88 cm.) across since the southern portion of the feature had been truncated by the matrix excavation of Trench #1.

After Feature 1 was completed the rest of Test Square #5 was shovelled and screened down to just above the orifice of Feature 2 as that concentration appeared in vertical profile in the northern wall of Trench #1. By this means further cultural materials were recovered from the A12 soil horizon associated with Feature 1. These include a small cord roughened vessel base sherd; thirteen body sherds of which one is incised, one bears dentate stamping, seven are cord roughened, and five are smoothed; one chert waste flake; twenty-five small bone fragments; fourteen bits of calcined bone; twenty-six mussel shell fragments; and five small samples of charcoal (see also Table 14).

Following the techniques used for Feature 1, the horizontal definition of Feature 2 was quickly delimited at 2.2 ft. (67 cm.) below the ground surface by trowelling off the test unit floor. Then the feature was excavated as a unit in arbitrary 0.2 ft. (6 cm.) increments for control purposes (Plate 31). Items were mapped as these were encountered and the fill was collected for water flotation. The feature was characterized primarily as a deep accumulation or pocket of burned earth and wood charcoal. Within the feature limits and just below the orifice were found four cord roughened body sherds, three small fragments of bone, a land snail shell, eight mussel shell fragments, and an unidentified charred seed or nut fragment. Charcoal was relatively abundant throughout. A krotovina containing another cord roughened body sherd was noted as a stain running through the fill. The final dimensions of the deposit at its widest were 1.8 ft. (55 cm.) east/west and 2.1 ft. (64 cm.) north/south, although the latter dimension had been truncated by Trench #1. Vertical thickness of the feature was 1.2 ft. (37 cm.), corresponding with the base of Paleosol 1 (see Figure 94 and Plate 32). Again the matrix surrounding the feature within Test Square #5 was shovelled and screened after excavation of the feature was completed, taking the test unit to a final depth of 4.6 ft. (140 cm.) or into Paleosol 2. From Paleosol 1 around Feature 2 were recovered three eroded grit tempered body sherds, two waste flakes, four bone fragments, a land snail shell, and three small charcoal samples. The only material recovered at any greater depth was a cord roughened body sherd from a krotovina in the strata between Paleosols 1 and 2, four mussel shell

PREHISTORIC ARTIFACTS

Medium-sized corner notched points	2	2	-	2	-	-	-
Small plain triangular projectile point	1	-	1	1	-	-	-
End scraper	1	1	-	1	-	-	-
Thin bifaces	2	2	-	2	-	-	-
Thick bifaces	3	3	-	3	-	-	-
Retouched flake/scrapers	2	2	-	2	-	-	-
Retouched flakes	5	3	2	4	-	1	-
Utilized flakes	15	12	3	13	-	2	-
<u>Chipped Stone Source & Waste Material</u>							
Shatter chunks	23	23	-	23	-	-	-
Waste flakes	99	90	9	90	-	8	1
<u>Ground Stone</u>							
Celt blade fragment	1	1	-	1	-	-	-
Sandstone abrader fragment	1	-	1	1	-	-	-
Pecked and/or smoothed stone	2	1	1	1	-	1	-
<u>Unworked Stone Source Material</u>							
Hematite	1	1	-	1	-	-	-
Angular granite & schist	5	-	5	-	-	3	2
HISTORIC ARTIFACTS							
<u>Ceramics</u>							
Porcelain & ironstone vessel fragments	22	22	-	22	-	-	-
Stoneware vessel fragments	14	14	-	14	-	-	-
<u>Glass</u>							
Clear & milkglass container fragments	8	8	-	8	-	-	-
Molded or pressed glass fragments	4	3	1	3	1	-	-
Crazed glass sphere	1	1	-	1	-	-	-
<u>Metal</u>							
Iron spike & cut nail	2	2	-	2	-	-	-
Iron washers & rivet	3	2	1	2	1	-	-
<u>Construction Debris - Concrete chunk</u>							
<u>ECOLOGICAL MATERIAL</u>							
Bird bone fragment	1	1	-	1	-	-	-
Fish & turtle remains (gill covers & shell)	7	5	2	5	1	1	-
Mammal bones & teeth fragments (including bovid, deer, raccoon, & rabbit)	38	15	23	15	9	12	2
Calcined bone fragments	114	32	82	32	8	73	1
Unidentifiable bone fragments	92	8	84	12	2	71	7
Freshwater mussel shell fragments	146	30	116	32	10	100	4
Land snail shells	11	3	8	3	-	6	2
Charred seed	1	-	1	-	-	-	1
Charred nutshells (<i>Juglans nigra</i>)	2	-	2	-	-	2	-
Wood charcoal samples	15	-	15	-	-	11	4
	1056	591	465	612	67	345*	32*

*Materials recovered as a result of flotation are not recorded here.

Table 14. Tabular Summary of Archaeological Materials Recovered from Site 13BN182. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.



Plate 31. Excavation in Progress of Feature 2, a Concentration of Charcoal, Burned Earth, and a Limited Amount of Bone and Mussel Shell, within Test Square #5 at Site 13BN182. This feature was located below Feature 1 and within Paleosol 1--the uppermost of two buried paleosols defined at the site. View is to the northeast

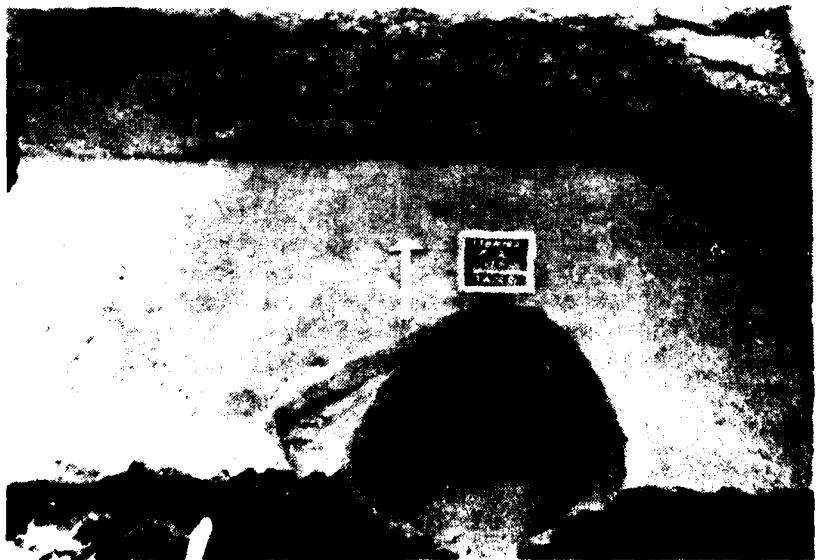


Plate 32. The Limits of Feature 2 at Site 13BN182 after All of the Fill Had Been Completely Removed. The fill was bagged for water flotation processing in the laboratory. View is to the north

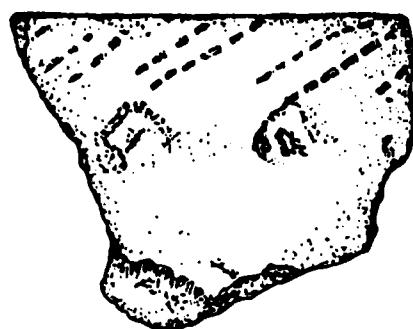
fragments within Paleosol 2, and a second cord roughened body sherd and a piece of calcined bone within a krotovina at 4.6 ft. (140 cm.). There body sherds are undoubtedly displaced from cultural deposits above; nothing of unquestionable cultural origin was derived from primary context within Paleosol 2.

The approach to the field testing at 13BN182 had been altered somewhat as testing proceeded from that originally proposed. Transects of soil probes, rather than a gridded probing plan, were implemented as a more efficient means of gathering the preliminary soils data and determining the potential areal distribution of the site. It was found, however, that short backhoe trenches and small test units quickly dug by hand provided more conclusive evidence than did the probing of the extent of disturbance over the site area. Because the modern disturbance resulting from the burial of pipelines, wells, and a telephone relay substation in this vicinity was determined to be widespread yet sporadic over the site area and successively buried cultural zones were determined to be present, the plan to blade away the plowzone over an extensive area was abandoned so that effort could be concentrated on the sampling of a more limited area within which both cultural zones, each with an associated feature, were demonstrated to be present in vertical profile in perpendicular backhoe trenches placed on the terrace shoulder.

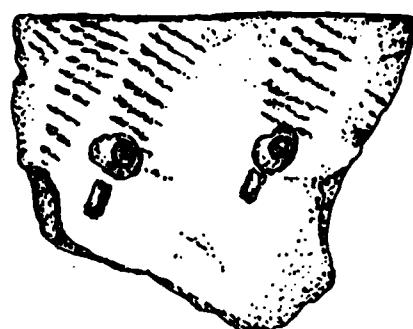
Results of Testing at Site 13BN182

Archaeological tests conducted at 13BN182 have shown that two prehistoric occupation zones, one below the other and each associated with a buried soil surface, exist at the site. Recent localized disturbance to these cultural deposits has occurred on portions of the terrace as a result of the mechanical burial of a telephone relay substation, wells, and pipelines, limiting the amount of site available for valid testing. A feature consisting of a depression containing charcoal, ash, and burned earth as well as some cultural debris was located in association with each of the two cultural zones in a part of the site which would be effectively tested. Both cultural zones appear to represent domestic encampments of Woodland cultural affiliation which are separated in time such that soil development had occurred within the period between the two occupations. A third buried soil surface, located below the two cultural deposits, shows no evidence of still-earlier human presence at the site.

The deeper, and therefore earlier, of the two cultural zones was located approximately 2.2 ft. (67 cm.) below the ground surface on the terrace in the area immediately west of the terrace escarpment. This deposit is 1.25 ft. (38 cm.) thick and coincides with Paleosol 1 as it was defined within the northern wall of Trench #1 (refer to Figure 94). This buried deposit is exposed to the surface by erosion only along the lowest



Exterior

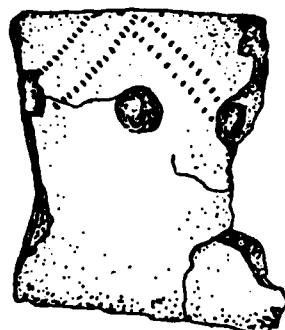


Interior

A

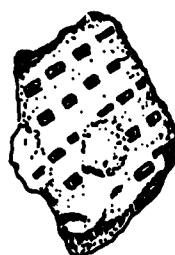


Exterior

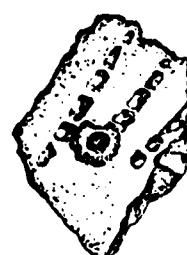


Interior

B



Exterior



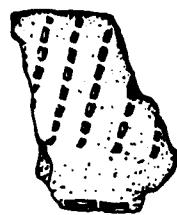
Interior

C

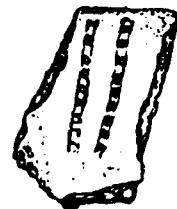
Figure 95. Selected Naples Dentate Stamped Rims from 13BN182. (A) Smoothed rim #543, with interior bosses and cord-wrapped stick impressions and exterior nodes and dentate stamping; (B-C) Cord roughened rim #498 and smoothed rim #540, respectively, with interior punctations and exterior nodes and dentate stamping on both the interior and exterior. A is from the surface near Test Square #4, B is from Feature 1, and C is from the fill removed from Trench #7. Actual size

position of the terrace escarpment. The cultural data classes found within this cultural zone and associated feature include some grit tempered ceramics; lithic debitage in the form of one chert waste flake; faunal remains including deer teeth, fragments of bone, land snail shells, and mussel shell fragments; plant remains consisting of wood charcoal and an unidentified seed or nut fragment; and the residues of burning such as ash and burned earth (see also Table 14). Additional materials recovered from the water flotation processing of the fill from Feature 2 include the bones and teeth of several small rodents, bone chips and calcined bone bits, many small land snail shells, a few unidentified charred seed fragments, and hackberry seed hulls. The only diagnostic artifacts from this cultural zone are the limited ceramics: one rim segment (Figure 96, D), a small rim fragment, and six small body sherds. Horizontal cord roughening, somewhat unique in Woodland ceramics from the central Des Moines Valley, is the surface treatment employed on the rim segment. On the exterior below the lip edge are short oblique cord-wrapped stick impressions and a circumferential series of punctations. The rim is upright to slightly out-curved and the lip top is flattened. Thickness of the vessel wall is 7 mm. This rim may be classified within the general category of Havana Ware, although the horizontal cord roughening is not characteristic (cf. Griffin 1952: 101-104). It is probable that this pottery was manufactured during the early portion of the Middle Woodland period. This assumption is made despite a radiocarbon date received on an assay of wood charcoal gathered from Feature 2 and providing a date of 2490 ± 80 years B.P., or 540 B.C. (BETA-2812). Such a date is probably toward the early end of the postulated Woodland spectrum within Iowa (cf. Gradwohl 1974: 101; McKusick 1964: 95).

The later and more shallow cultural component at 13BN182 lies directly below the plowzone and extends to a depth of generally 1.8 ft. (55 cm.) below the surface. A sterile soil band roughly 0.5 ft. (15 cm.) thick separates this upper cultural zone from the lower one in this location on the terrace (refer to Figure 94). Plowing has evidently cut through the upper portion of the cultural deposit, and this deposit, which coincides with the A12 soil horizon, is exposed at the surface by erosion and plowing on the terrace escarpment. In that erosion zone a considerable number of prehistoric cultural materials may be found in concentration on the surface. The cultural data classes directly associated with this component include grit tempered ceramics; chipped stone in the form of a retouched flake (Figure 99, H) and two utilized flakes; chipped stone debitage in eight waste flakes; faunal remains including bones and teeth of white-tailed deer and turtle shell as well as copious amounts of bone chips and calcined bone fragments, fresh water mussel shell fragments, and land snail shells; plant remains such as wood charcoal and charred black walnut shell fragments; and residues of burning such as ash and burned earth (refer also to Table 14). On the site's surface and in the plowzone similar artifact classes

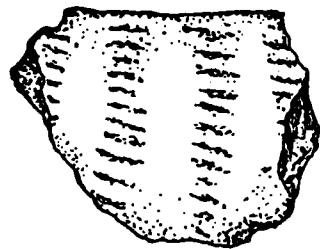


Exterior



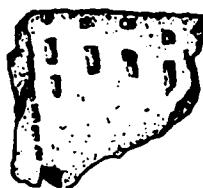
Interior

A



Interior

B

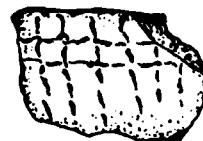


Interior

C



D



E

Figure 96. Selected Decorated Rims from 13BN182. (A) Smoothed rim #68, with interior and exterior dentate stamping; (B) Smoothed rim #477, with undecorated exterior and cord-wrapped stick impressed interior; (C) Smoothed rim #220, with undecorated exterior and dentate stamped interior; (D) Cord roughened rim/shoulder #367, with exterior punctations and short dentate stamps along the exterior lip edge; (E) Cord roughened rim #1, with single-cord impressed lines forming a border below the lip. B is from Feature 1, D is from a depth of 3.4 ft. (104 cm.) within Trench #2, and the rest are from the surface. Actual size

are present and are likely to have been derived from this upper cultural zone as it was disturbed by the plow. Here the items that make up the chipped stone tool category are more abundant and include projectile points and point fragments (Figure 99, A-D), an end scraper (Figure 99, E), a graver (Figure 99, F), bifaces (e.g. Figure 99, G), and retouched and utilized flakes. The notched and stemmed points are to be expected from a Woodland context; the small plain triangular point, however, can be either of Late Woodland or post-Woodland origin and may represent an incidental occurrence. Ground stone is represented on the surface by a broken axe or celt bit and a hammerstone (Figure 100, A and B).

Water flotation of the fill from Feature 1 produced an abundance of culturally-derived materials. These include small grit tempered body sherds, a chert biface thinning flake, and several tiny chert pressure flakes. Faunal materials include hundreds of splinters and small chunks of bone, many of which are calcined and some of which exhibit rodent gnawing. Small rodent bones and teeth make up the majority of the bones which may be identified; bones and/or teeth of white-tailed deer (Odocoileus virginianus), raccoon (Procyon lotor), turtle, and fish are also present. Freshwater mussel shell fragments and land snail shells were retrieved in quantity from the fill. Charred plant remains, in addition to wood charcoal, include nut shell fragments of black walnut (Juglans nigra) and hazelnut (Corylus americana) or acorn (Quercus sp.), hackberry seeds (Celtis reticula), one seed similar to sunflower (Helianthus sp.), smartweed (Polygonum sp.), vetch (Vicia sativa), and several very small seeds which are not identified. Unfortunately, none of the plants so far represented are definite evidence for the practice of horticulture by the Middle Woodland peoples who inhabited 13BN182. The length of the charred Helianthus achene, 5 mm., suggests that it is not of the domesticated variety (cf. Mead 1981: 43-46).

The grit tempered ceramics from this more recent component include an array of dentate stamped rims and body sherds, some of which also bear cord-wrapped stick impressions, punctations and nodes, and incising. The rims are generally upright and have flattened lips. Surface treatment employed is either cord roughening or smoothing. The decorative styles present may be classified as Naples Dentate Stamped (e.g. Figure 95, A-C) and/or as Levensen Stamped (e.g. Figure 97, A and C), or as general Havana Ware ceramics such as the rim shown in Figure 96, B (cf. Griffin 1952: 101-114; Logan 1976: 131-134). At least one body sherd (Figure 97, B) appears to be Havana Zoned. Spring Hollow Incised ceramics are also present, such as the two body sherds in Figure 97, D and E, and in the vessel segments shown in Figure 98, A and B (cf. Logan 1976: 131). One single-cord impressed rim (Figure 96, E) may also be associated with this component. All these ceramics are typical of those expected in a Middle Woodland to late Middle Woodland context (Alex 1980: 88-91) and show remarkable similarities to the Havana-Hopewell ceramics recovered at 13BN29 and 13BN30, directly east across the river from 13BN182 (refer to the discussion of 13BN30 earlier in this report).

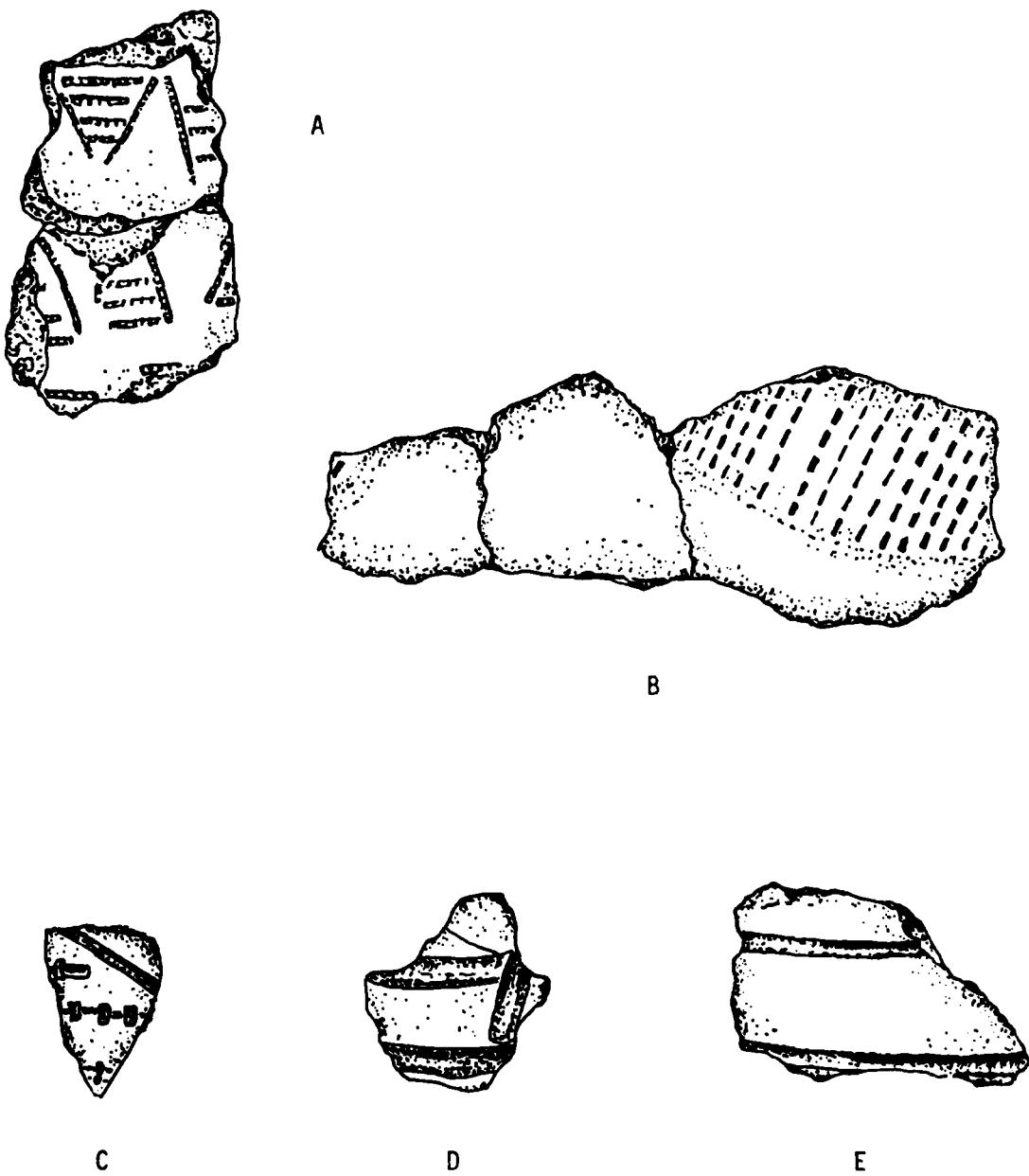


Figure 97. Selected Decorated Neck and Body Sherds from 13BN182. (A) Smoothed neck segment #221/222, with dentate stamping forming triangular motifs; (B) Smoothed shoulder segment #478, with a zone area filled with dentate stamping; (C) Smoothed body sherd #78, with incised line and knotted cord impressions; (D-E) Smoothed body sherds #45 and 437, respectively, with broad trailed lines. B is from Feature 1, E is from a depth of 1.6-1.8 ft. (49-55 cm.) within Test Square #5, and the rest are from the surface. Actual size

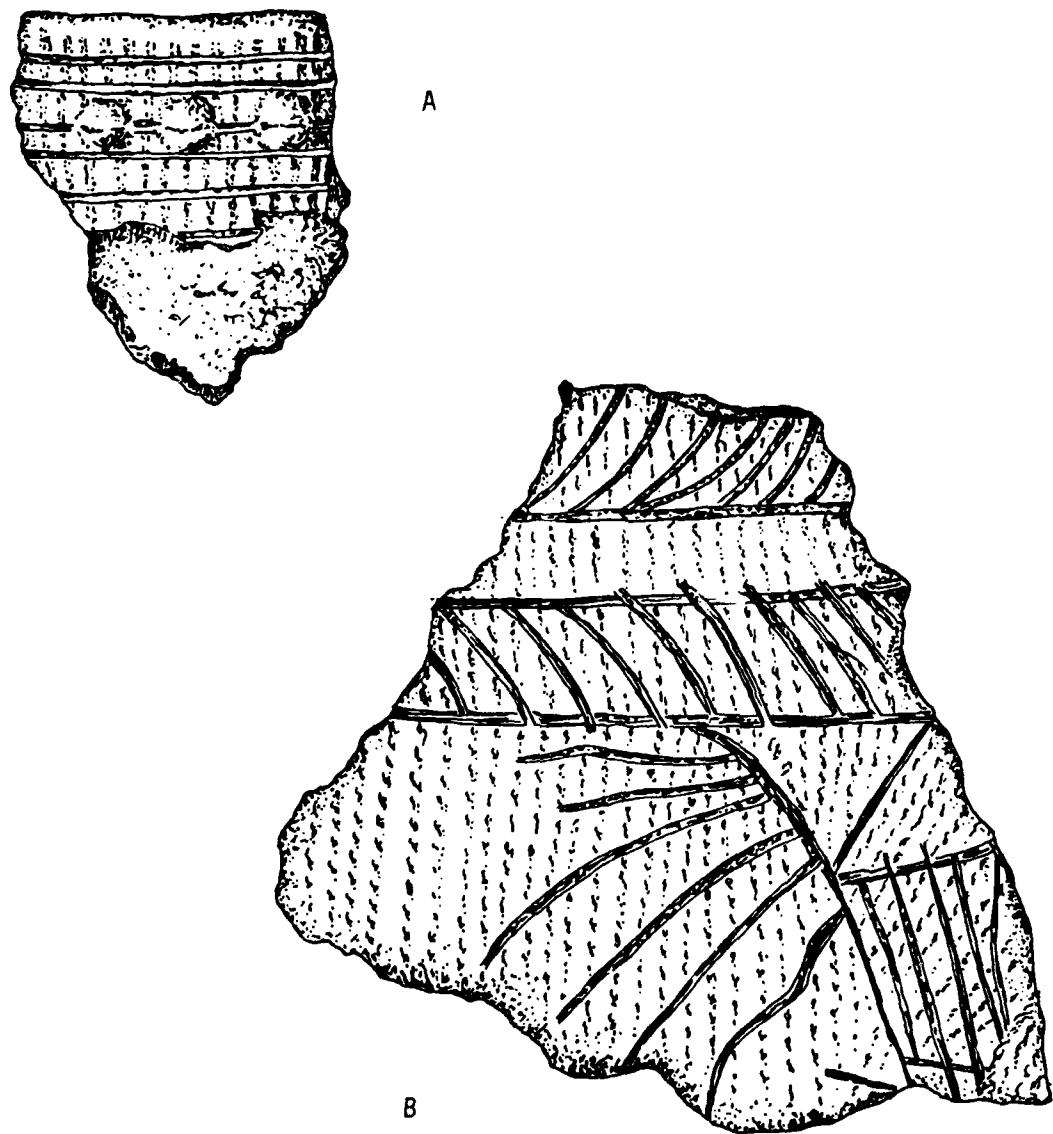


Figure 98. Selected Spring Hollow Incised Ceramics from 13BN182. (A) Rim #360, with interior punctations and exterior nodes and parallel incised lines over cord roughening; (B) Vessel shoulder segment #361, with zoned incising over cord roughening. Both specimens are from Trench #2 at a depth of 1.3 ft. (40 cm.) and may be portions of the same vessel. Actual size

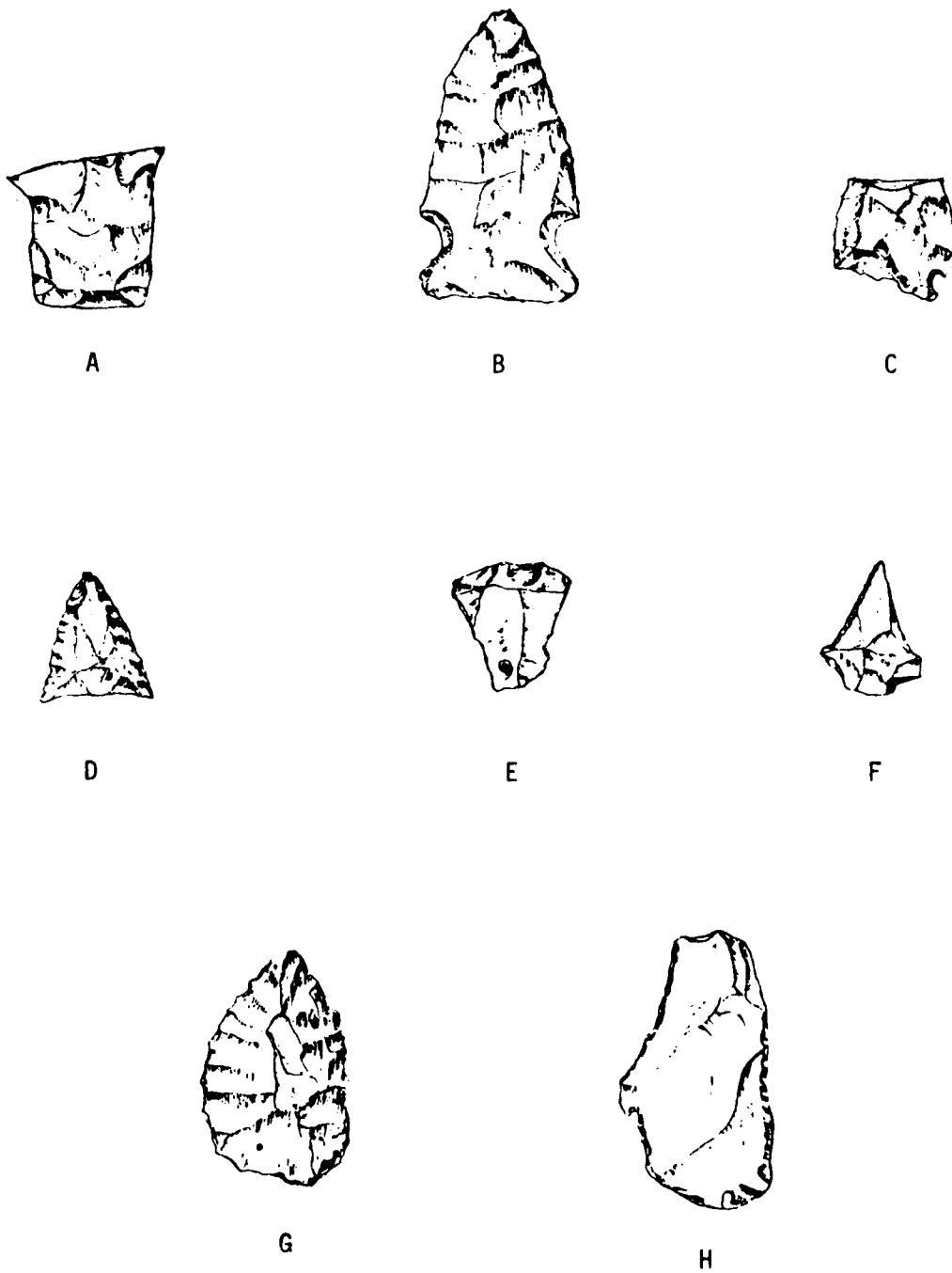
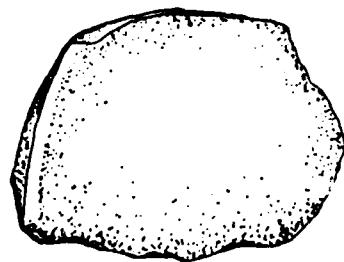
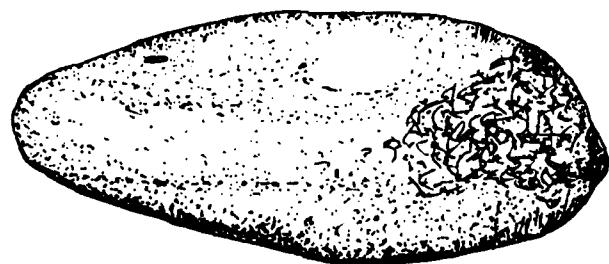


Figure 99. Selected Chipped Stone Artifacts from 13BN182. (A) Parallel stemmed point base #6; (B-C) Corner notched projectile points #53 and 7, respectively; (D) Plain triangular projectile point #542; (E) Small end scraper #8; (F) Graver #183; (G) Thin biface #182; (H) Retouched flake #401. H is from the plowzone of Test Square #5; all the rest are from the surface. Actual size



A



Side View

B

Figure 100. Ground and Pecked Stone Tools from 13BN182. (A) Fragment of a diorite axe or celt bit #184, (B) Diorite hammerstone #306. Both specimens are from the surface. Actual size

AD-A124 338 SAYLORVILLE STAGE 3 CONTRACT COMPLETION REPORT: TESTING #4
OF PRIORITY 1 ARCS. (U) IOWA STATE UNIV AMES
ARCHAEOLOGICAL LAB N M OSBORN ET AL. FEB 82

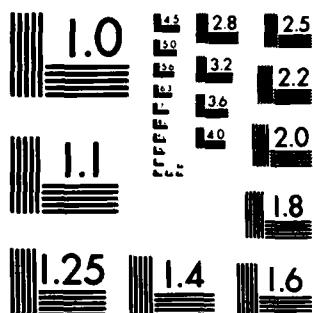
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Temporal comparisons are possible between this Middle Woodland to late Middle Woodland component at 13BN182 and those at other Middle Woodland sites within the region. Wood charcoal retrieved from Feature 1 at 13BN182 was submitted for radiocarbon assay and the resulting date is 1820 ± 60 years B.P., or A.D. 130 (BETA-2811). This date is several hundred years later than that received from 13BN30 -- 350 B.C. (BETA-2810) -- and falls more nearly in the middle of the time range postulated for Hopewellian occupations in Illinois (cf. Willey 1966: 251). Radiocarbon dates from the Sparks site (13BN121), a Middle Woodland village 2 miles (3.2 km.) south of 13BN182 and 13BN30, read out around A.D. 280 (WIS-630) and A.D. 350 (WIS-517) -- also within the expected range. If the dates gotten from all these sites are to be believed, then there appears to be an occupational gap of several generations between these sites, yet the diagnostic material culture evidence would suggest that those occupations are closely allied. Similarities, particularly in the ceramic assemblages, from site to site attest to some apparent cultural continuity over a period of time within the same locality. However, comparison between the dates received for the two Woodland components at 13BN182, both of which contain Havana-like ceramics, show a break of 500 to 800 years between the two occupations -- which is really more than creditability will allow. It is possible that one strong focal point for Middle Woodland continuity in this locality was the presence of the Boone Mound (13BN29), a mortuary structure with presumed important religious significance.

Impacts of the Saylorville Lake Project on Site 13BN182

Because site 13BN182 is located within the upper portion of the flood control pool of Saylorville Lake, adverse impact to the site will be realized whenever the lake rises above 875 feet in elevation for flood storage. Wave action along the terrace escarpment will erode and undercut the two cultural zones as these are exposed there, and at highest flood stage the entire terrace surface will be inundated. At present, no secondary use of the site area, beyond wildlife management and leased cultivation, is scheduled (refer to Plate III, Saylorville Lake Recreation Master Plan 6B, Rock Island District, U.S. Army Corps of Engineers, 1973).

Recommendations for Further Work at Site 13BN182

The results of archaeological testing at site 13BN182 have shown that the potential there is good for the recovery of pertinent culture-historical and ecological data from two successive and stratigraphically-distinct Middle Woodland cultural zones. Therefore, further archaeological work at the site is highly recommended to answer questions regarding the development of Middle Woodland culture within this specific region of the Des Moines River Valley and to gather data which may be used to reconstruct the interaction between Middle Woodland peoples of this region who manufactured ceramics with Hopewellian characteristics with those groups to the east who built and inhabited the "classic" centers along the Illinois River Valley and in Indiana and Ohio.

At least two factors will control the extent and amount of future work to be carried out at 13BN182. The first is the necessity for gaining permission to enter across private property so that personnel and equipment may be transported to the site; without such permission future investigations there will not be possible. The second is the degree to which portions of the site have already been destroyed by mechanical excavation for the burial of pipelines, wells, and a telephone relay substation at this locus. Testing has shown that this disturbance is sporadic and that the greatest destruction has occurred to the north of the Trench #1/Trench #2 complex. Therefore it is recommended that systematic archaeological investigation in the future be undertaken adjacent to the major trenching complex as well as on the terrace edge immediately to the south.

Of all the Priority I sites tested, site 13BN182 shows the greatest potential for yielding a large number of plant and animal remains in association with diagnostic prehistoric artifacts. Preservation of ecofactual materials such as seeds, nuts, and wood -- all in charred form -- as well as bone, teeth, and shell has been found to be good to excellent here, and retrieval of such data in solid cultural context is highly likely. Further investigation of the site's components should be tailored to capitalize upon this fact: water flotation of all feature fill is strongly recommended. A sufficient amount of charcoal, also in the presence of diagnostic materials, is likely to be available for radiocarbon dating. Further dates are needed to verify the temporal range of occupation represented; such dates could provide the basis upon which rates of culture change might be calculated and pinpoint specific time periods for specific ecological settings within the prehistoric past of the central Des Moines Valley.

13BN203

Environmental Context of Site 13BN203

Site 13BN203 is located on a lowland terrace at the base of a steep bluff slope above the right bank of the Des Moines River in Boone County, Iowa (Figure A-32). The orientation of the elongated blufftop ridges above the site is parallel rather than perpendicular to the river channel at this locus (refer to Figure A-33); such a formation is a rather uncommon occurrence along this segment of the Des Moines trench. The site's position lies between 850 and 875 feet above mean sea level and covers an area of 18 to 20 acres (7 to 8 hectares). The site is bounded on the north by the forested bluff slope, on the east by an unnamed stream which flows to the Des Moines, on the south by the river channel, and on the west by a swale in the terrace surface. The site area has been continuously cultivated during the historic period and a farmstead had been situated at the eastern limit of the site.

The soils upon which the site occurs are mapped as Hanlon fine sandy loam, 0-2% slopes, and Moingona loam, 5-9% slopes. Both soils are derived from loamy alluvium and are moderately well drained (USDA Soil Conservation Service 1981: 27-29, 63, 70 and Sheet 67). Since the prevailing winds in this region blow from the north and west, the site's location is naturally sheltered by the adjacent bluff above. For instance, archaeological monitors from Iowa State University noted that 13BN203 was perceptibly warmer on one January day in 1980 than was 13BN38, a short distance away across the river and slightly downstream.

Previous Investigations at Site 13BN203

Site 13BN203 was located and designated by Lionel Brown of the Smithsonian Institution River Basin Surveys during an archaeological survey of the Saylorville region immediately along the Des Moines River in the summer of 1966. In regard to 13BN203 Brown reported that:

The landowner has found several grooved axes and celts in the field and, although the thick crop cover prevented the RBS team from conducting an effective search, a few stone flakes were visible on the surface. The site will be flooded and it should be re-examined at a time when the crop cover is absent (Brown 1966: 15).

On Brown's recommendation personnel from the Iowa State University Archaeological Laboratory checked the site in June of the following year under a contract with the National Park Service to conduct archaeological investigations within the Saylorville Lake area. At that time the crew was able to collect two fine grit or sand tempered Great Oasis Incised rims (e.g. Figure 103, A), a tool impressed rim (Figure 103, D), and thick grit tempered cord roughened body sherds typical of Woodland ceramic assemblages. Non-ceramic finds included several stemmed projectile points and notched or stemmed point bases (Figure 104, A-H), an end scraper (Figure 105, C), bifaces (e.g. Figure 105, A-B), and other chipped stone tool fragments, axe and/or celt fragments (e.g. Figure 107, B), and pieces of ground stone. Chipped stone source and waste materials were abundant in the form of cores (e.g. Figure 105, D) and core fragments, shatter chunks, and waste flakes; unworked bone and freshwater mussel shells were also present. Historic debris recovered included a few pieces of china, stoneware, milkglass, and iron, and a brass tag stamped with the name of E. E. Chandler (Figure 107, C). It was on the basis of the distribution over the field of those materials collected that the general limits of the site were defined in 1967. A summary of the status of 13BN203 was presented to the Rock Island District of the U.S. Army Corps of Engineers as part of a roster of all archaeological sites known within the Saylorville Lake area as of 1973 (Gradwohl and Osborn 1973b: 44).

In 1975, during the survey of Reconnaissance Unit 12 within the intensive archaeological reconnaissance of the upper Saylorville Lake region for the U.S. Army Corps of Engineers-Rock Island District, Iowa State archaeologists visited 13BN203 again. That field check produced another Great Oasis Incised rim (Figure 103, B) as well as some smoothed grit tempered body sherds, chipped stone tool fragments, a waste flake, bone, and a historic brass pocket knife. All the data known for the site up to that time was reported to the Corps with the recommendation that the site be intensively tested to determine the nature of the prehistoric components suggested by the surface finds (Gradwohl and Osborn 1976: 40-41). Subsequent visits were made to the site in 1976 and 1980 in an attempt to recover additional diagnostic materials. However, permission to enter across private property for the purpose of survey could not always be obtained and when such permission was granted the ground cover conditions for survey were not always good. Therefore, only a few additional prehistoric and historic artifacts were added to the inventory during this period (refer also to Table 15).

PREHISTORIC ARTIFACTS		Total	Material Collected Prior to Testing	Material Collected During Testing	Surface (cultivated field)	Ap or Plowzone	A12/A3 Soil Horizon (0.9-1.2 ft.; 27-37 cm.)
<u>Ceramics</u>							
Great Oasis Incised rim/body vessel segments	4	3	1	3	1	-	
Decorated Woodland rim/body vessel segments	2	1	1	1	1	-	
Undecorated or cord marked grit or sand tempered vessel fragments	57	34	23	41	13	3	
<u>Chipped Stone</u>							
Stemmed projectile points	6	6	-	6	-	-	
Notched or stemmed point bases	2	2	-	2	-	-	
End scraper	1	1	-	1	-	-	
Thin bifaces (including point segments)	9	9	-	9	-	-	
Thick bifaces	3	3	-	3	-	-	
Retouched flake/scrapers	1	1	-	1	-	-	
Retouched flakes	10	6	4	7	2	1	
Utilized flakes	33	32	1	33	-	-	
<u>Chipped Stone Source & Waste Material</u>							
Cores & core fragments	5	5	-	5	-	-	
Shatter chunks	14	12	2	13	1	-	
Waste flakes	139	122	17	126	8	5	
<u>Ground Stone</u>							
Celt or axe fragments	2	2	-	2	-	-	
Celt or axe blank	1	1	-	1	-	-	
Grooved and/or smoothed sandstone abraders	2	1	1	1	1	-	
Grinding stone fragments	2	1	1	2	-	-	
<u>Unworked Stone Source Material</u>							
Hematite	1	-	1	1	-	-	
Chert cobble	1	-	1	1	-	-	
HISTORIC ARTIFACTS							
<u>Ceramics</u>							
Porcelain & ironstone vessel fragments	4	4	-	4	-	-	
Stoneware vessel fragments	9	9	-	9	-	-	
Redware door knob	1	1	-	1	-	-	
<u>Glass</u>							
Milkglass container fragment	1	1	-	1	-	-	
Milkglass preserve jar lid liner fragment	1	1	-	1	-	-	
<u>Metal</u>							
Miscellaneous iron fragments (including a							

Notched or stemmed point bases	2	2	-	2	-	-
End scraper	1	1	-	1	-	-
Thin bifaces (including point segments)	9	9	-	9	-	-
Thick bifaces	3	3	-	3	-	-
Retouched flake/scrapers	1	1	-	1	-	-
Retouched flakes	10	6	4	7	2	1
Utilized flakes	33	32	1	33	-	-
Chipped Stone Source & Waste Material						
Cores & core fragments	5	5	-	5	-	-
Shatter chunks	14	12	2	13	1	-
Waste flakes	139	122	17	126	8	5
Ground Stone						
Celt or axe fragments	2	2	-	2	-	-
Celt or axe blank	1	1	-	1	-	-
Grooved and/or smoothed sandstone abraders	2	1	1	1	1	-
Grinding stone fragments	2	1	1	2	-	-
Unworked Stone Source Material						
Hematite	1	-	1	1	-	-
Chert cobble	1	-	1	1	-	-
HISTORIC ARTIFACTS						
Ceramics						
Porcelain & ironstone vessel fragments	4	4	-	4	-	-
Stoneware vessel fragments	9	9	-	9	-	-
Redware door knob	1	1	-	1	-	-
Glass						
Milkglass container fragment	1	1	-	1	-	-
Milkglass preserve jar lid liner fragment	1	1	-	1	-	-
Metal						
Miscellaneous iron fragments (including a washer & rivet)	4	4	-	4	-	-
Small brass disk	1	1	-	1	-	-
Brass pocket knife fragment	1	1	-	1	-	-
ECOLOGICAL MATERIALS						
Deer bone & tooth fragments	2	2	-	2	-	-
Unidentifiable bone fragments	4	4	-	4	-	-
Freshwater mussel shell fragments	12	12	-	12	-	-
Sample of wood charcoal bits with burned earth (modern intrusion)	1	-	1	-	-	1
	336	282	54	299	27	10

Table 15. Tabular Summary of Archaeological Materials Recovered from Site 13BN203. The data are arranged both by the period during which the materials were recovered as well as by cultural/stratigraphic provenience from which these materials were collected.

Statement of Research Objectives

Although culturally-diagnostic artifacts were not recovered or recorded at the time the site was designated in 1966, archaeological materials collected from the surface of 13BN203 by personnel from the Iowa State University Archaeological Laboratory since 1967 have suggested the potential for the location of at least two prehistoric components there. Most of the stemmed and/or notched projectile point styles available suggest affiliations falling between Late Archaic and Middle Woodland (cf. Ritzenthaler 1967: 25, 27-28) while several of the ceramic specimens appear to be Woodland in origin. The presence in the inventory of Great Oasis Incised rims is evidence for a presumed later post-Woodland occupation. A similar multiple-component situation was noted at 13BN38, just downstream and on the opposite bank of the Des Moines River from 13BN203 (refer to Figure A-16 and Figure A-32), and there was some speculation that there might have been cultural interrelationships involving the two loci during each of the Woodland and Great Oasis occupation periods -- for instance, two sub-units of the same group might have been occupying campsites near one another; or the same group might have occupied each of the loci on a seasonal basis, one as a winter campsite and the other as a summer habitation.

The first objective of archaeological testing at 13BN203 is to establish whether or not one or both of the prehistoric components alluded to in the surface collections remained in primary context at the site and what the horizontal extent of those components might be. Another goal is to determine if there might be any deeply-buried cultural zones at the site for which no indication was yet present in the surface finds. Should data regarding a Great Oasis occupation be extant here then this resource might be used to answer research questions bearing on the interaction of a Great Oasis cultural group with known Oneota manifestations in the Des Moines trench to the south as well as the subtle distinctions between Great Oasis material culture with assemblages more generally referred to as Late Woodland. The apparent Woodland component may provide comparative data to answer the research question regarding shared settlement preferences and material culture similarities between Middle Woodland occupations of Havana-Hopewell affinity both in the immediate Saylorville region and beyond.

Following yet another of the research questions, particular emphasis would be placed on gathering ecological data which would provide general environmental information, which would produce evidence that horticulture was being practiced not only by Great Oasis groups but also by earlier Woodland occupants of the valley, and which might indicate the seasons of the year during which the site had been occupied and the kinds of plants and animals which were exploited.

Statement of Methodology at Site 13BN203

Although site 13BN203 now lies on Federally-acquired land, access into the area remains under the control of a private landowner. Permission to enter across the owner's ground was obtained by the Rock Island District-U.S. Army Corps of Engineers for a period of six months beginning in July of 1980 (refer to the pertinent correspondence dated 3 September 1980 in Appendix I). However, completion of field testing at the site could not be made until early in the spring of 1981 -- after expiration of the written agreement. Therefore, personnel from the Iowa State University Archaeological Laboratory contacted the landowner directly and an informal agreement was reached so that testing might proceed. One additional cause for concern on the part of the Iowa Conservation Commission, current managers of this Federal property, and the archaeologists was the state of the small bridge on Federal property which must be crossed to reach the site. The supports had long since rotted away and the bridge's load-bearing capacity was in question. Therefore, only the soil scientist and the backhoe operator were allowed to cautiously take their vehicular equipment over the bridge; field personnel walked into the site carrying all other equipment needed for the archaeological work.

Soil probing as the initial phase of archaeological testing was conducted at the site on 27 October 1980. Using as an origin point the corner of a barn foundation, a transect of eight soil cores was placed in a south-westward direction across the eastern sector of the site to a point on the terrace escarpment (refer to Figure 101). There cores were taken with a truck-mounted hydraulic solid-core soil probe; each core was 2 inches (5 cm.) in diameter and was spaced from the next at intervals varying from 80 to 100 ft. (26-33 m.). A second shorter transect consisting of four probes branched from the first transect in an easterly direction to sample an adjacent lower terrace remnant, a position from which surface artifacts had never been collected. The probes were taken to depths between 3.75 and 5 ft. (114-152 cm.).

The excessively sandy nature of the soil here made description more difficult than usual. Both upper and lower terraces were found to be composed of alluvially-deposited sands underlain by gravel. The only overlying slopewash present is located on and at the base of the gentle escarpment between the terraces and along the river bank. No buried soil surfaces were defined on either terrace position, suggesting that the surface artifacts collected in the past had come from a deposit near the surface of the uppermost terrace and that these had been turned to the surface by plow action.

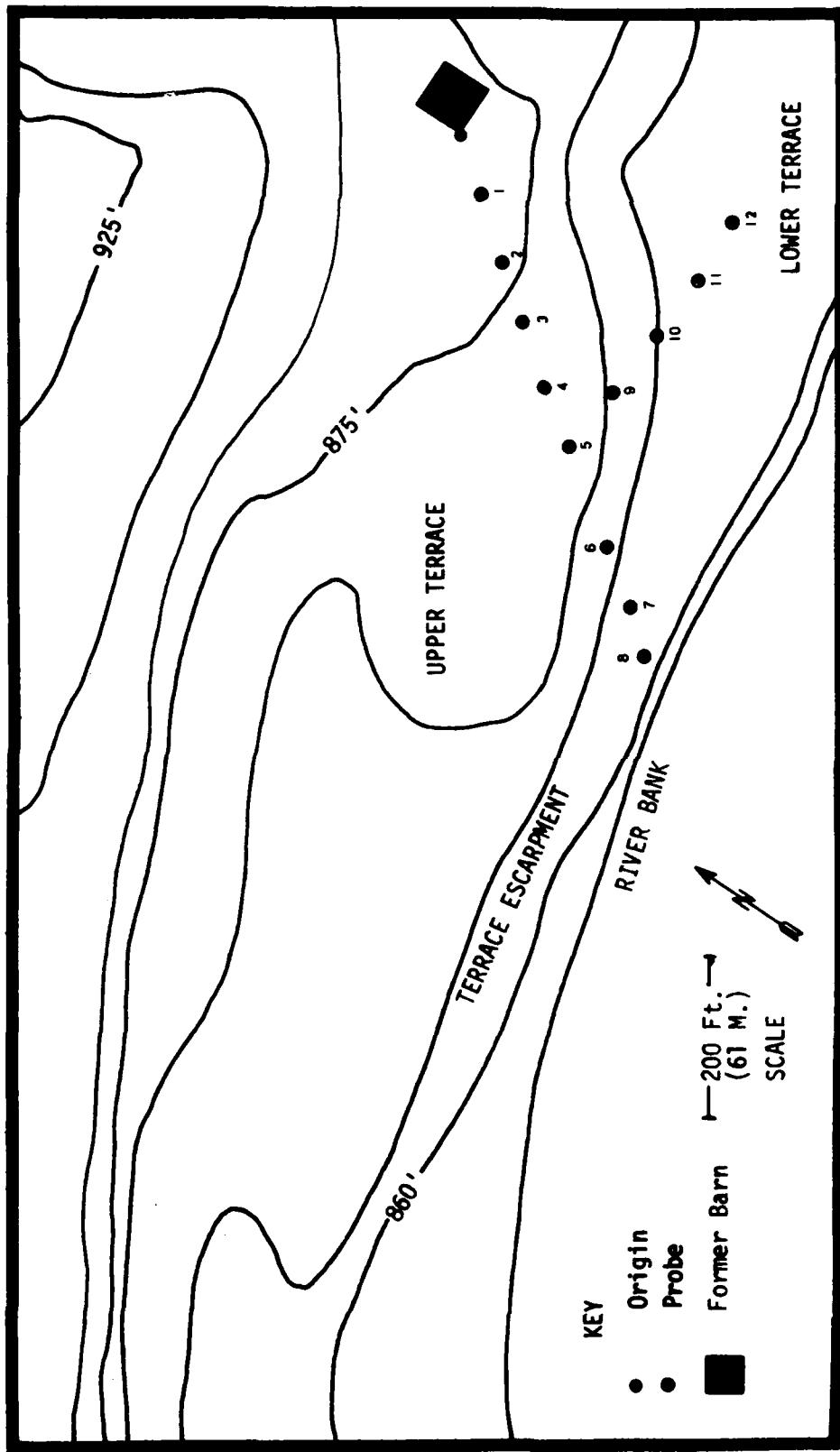


Figure 101. General Geomorphology and Placement of Soil Probe Transects at Site 13BN203

Further testing at 13BN203 was initiated the following spring as soon as ground conditions would allow. On 19 March 1981 a backhoe trench was dug from the major terrace surface and through the terrace escarpment toward the lower terrace (refer to Figure 102). Trench #1 was 2 ft. (61 cm.) wide and 100 ft. (33 m.) long with a maximum depth of 4 ft. (112 cm.). The trench's vertical profile revealed much the same information as had been gotten in the soil probes; i.e., neither any buried soil surfaces nor cultural features were exposed in this cut. A second backhoe cut, Trench #2, was placed through another portion of the terrace edge to the southwest of Trench #1. This trench was 80 ft. (26 m.) long and 4 ft. (122 cm.) deep and provided a vertical profile view which varied little from that in Trench #1. On the edge of the terrace near the swale at the westward limit of the site a third trench was dug. Trench #3 was 140 ft. (46 m.) long and 4 ft. (122 cm.) deep. The profile exposed here is one of dark slackwater deposits overlying clay loam and clay, indicating that this area was at one time very damp and boggy. No buried soil surfaces were in evidence.

To sample portions of the site in horizontal profile for the purposes of locating clusters of contextual data, several horizontal scrapes to the base of the plowzone with the blade of a front-end loader were attempted. Two factors worked against the complete success of this technique. The first was that the field had been left over the winter in unplowed oat stubble and the second was that frost had not yet left the ground. The blade could not bite cleanly through the tough ground cover and the frozen ground gave the scrape a "wash board" effect. Several attempts were necessary to cut through the stubble and expose the black soil so that the sun could warm and thaw it out. In this manner four separate horizontal scrapes, each about 150 square ft. (14 square m.) in area, were established along the main probing transect alignment across the major terrace surface (refer to Figure 102). Three additional scrapes were placed on the terrace surface to the east of Trench #3 in the western part of the site. At the plowzone contact each scrape was shovel-skinned clean by hand to check for soil color changes, cultural features, and artifacts. Plowzone materials recovered by machine scraping include a large sandstone slab which had been used as an abrader (Figure 106) and a waste flake from Horizontal Scrape #3, and a tool stamped or incised body sherd (Figure 103, E) from Horizontal Scrape #5. Just below the plowzone contact in apparent primary context was found one waste flake in Horizontal Scrape #1, a fragmented grit tempered sherd from Horizontal Scrape #5, and two waste flakes within Horizontal Scrape #6. Extensive soil mottling was also noted in Scrape #6 with a concentrated area of burned earth and charcoal. This concentration was designated as Feature 1; however, further investigation showed the feature to be an intrusive burned tree root and not distinctively cultural in nature.

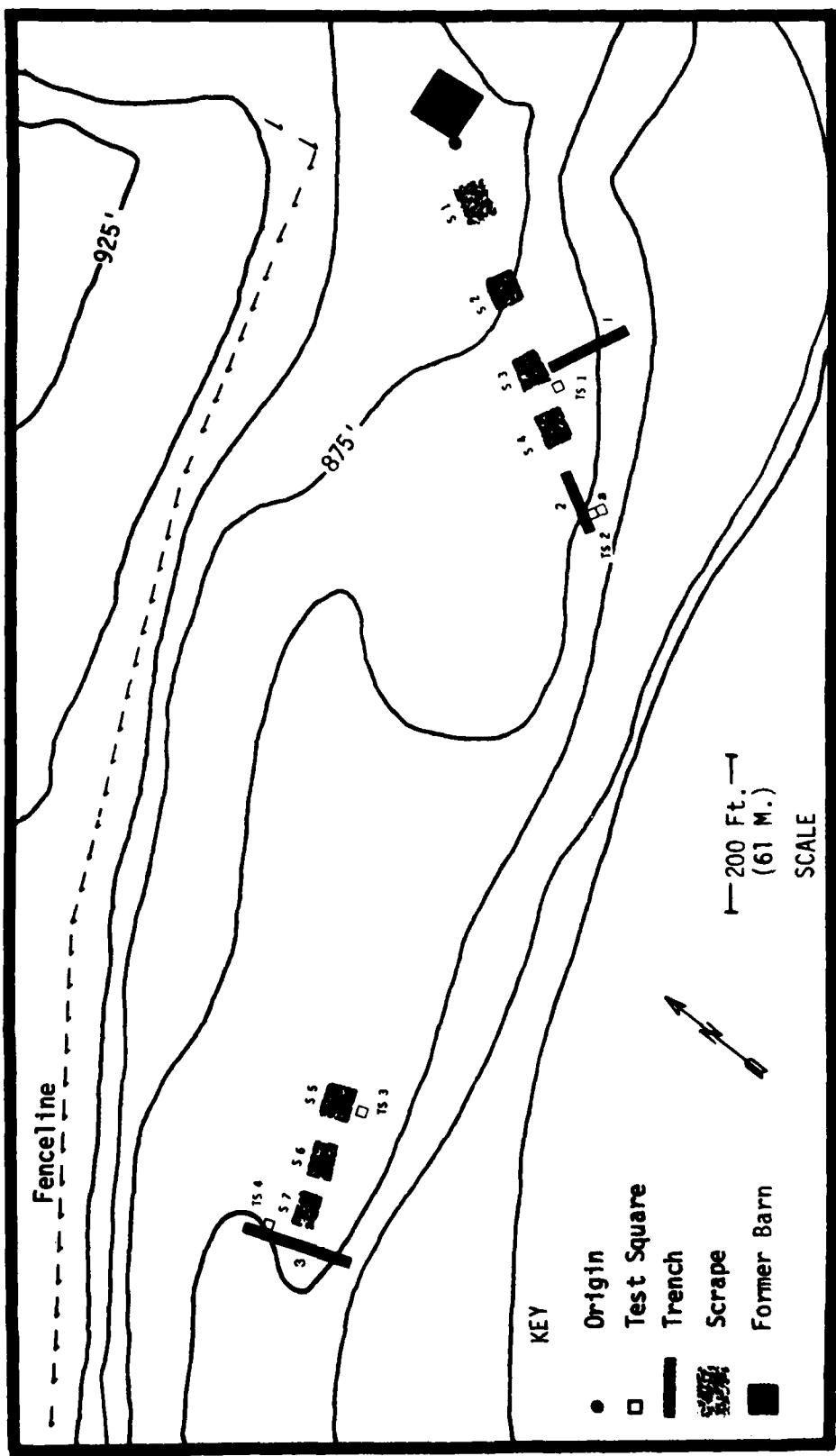


Figure 102. Placement of Trenches, Horizontal Scrapes, and Test Squares at Site 13BN203. The fenceline marks the Federal acquisition boundary

For still further control four hand-dug test squares were established, two in the eastern part of the site and two in the western sector (refer to Figure 102). Each was a 5 ft. (1.5 m.) square test unit which was shovelled and the fill screened through 1/2-inch mesh hardware cloth screens. Each unit was taken to a final depth of 1.2 ft. (37 cm.) below the ground surface -- well into the matrix below the plowzone. As in the scrapes, shovelling was found to be difficult because of the frozen ground, so the soil was removed in thin increments as it was exposed to the sun and thawed out. Test Square #1 was placed near Trench #1 and Horizontal Scrape #3 on the terrace surface. There the plowzone yielded a small eroded grit tempered sherd, a retouched flake, and two waste flakes. However, no materials were located below the plowzone.

Test Square #2 was placed on the terrace escarpment adjacent to Trench #2. Here the plowzone produced one cord roughened body sherd. Just below the plowzone contact the test unit floor exposed a series of mottled stains (Plate 33) within which no artifacts or ecofacts were visible. One distinct dark circular stain located at this depth near Trench #2 showed in horizontal profile as being 0.6 ft. (18 cm.) in diameter and was designated as Feature 2. The stain was cored and was found to be a small hemispherical depression 0.25 ft. (8 cm.) deep and filled with fine black loam (Plate 34). There was nothing to indicate a prehistoric origin or use for the feature and it is now thought to represent the base of a relatively modern fencepost hole. To further explore the mottling at the plowzone contact a second 5 ft. (1.5 m.) square test unit was opened as an extension of Test Square #2. From this plowzone was recovered a small Great Oasis Incised rim (Figure 103, C), a piece of black chert, and a retouched flake. No further materials were found within the mottled matrix below the plowzone.

In the western part of the site Test Square #3 was placed on the terrace surface on the south side of Horizontal Scrape #5. From the plowzone came a small piece of a smoothed grit tempered rim, eight small grit tempered body sherds, a biface thinning flake which had been retouched to a scraping edge, and some basalt chips. Below the plowzone in primary context at a depth between 1.0 and 1.4 ft. (30-43 cm.) were recovered two small eroded grit tempered sherds. Test Square #4 was placed on the terrace edge and adjacent to Trench #3. Here the only item recovered was a waste flake near the base of the plowzone.

The proposed testing strategy was followed closely at 13BN203, the only deviation being the use of selective transects for soil probing rather than a more dispersed probing pattern. This change was made on the recommendation of the soil scientist involved. Horizontal machine scraping was found to be time-consuming at this site because of the oat stubble ground cover and the frozen soil.



Plate 33. Mottled Soil Stains as These Showed Up Just Below the Plowzone Contact within Test Square #2 at 13BN203. View is to the north northwest with Trench #2 visible beyond the left shoulder of the field technician



Plate 34. Feature 2, Possibly the Base of a Modern Post Mold, Shown in Cross-Section after Coring of the Feature was Completed within Test Square #2 at 13BN203. View is to the east southeast

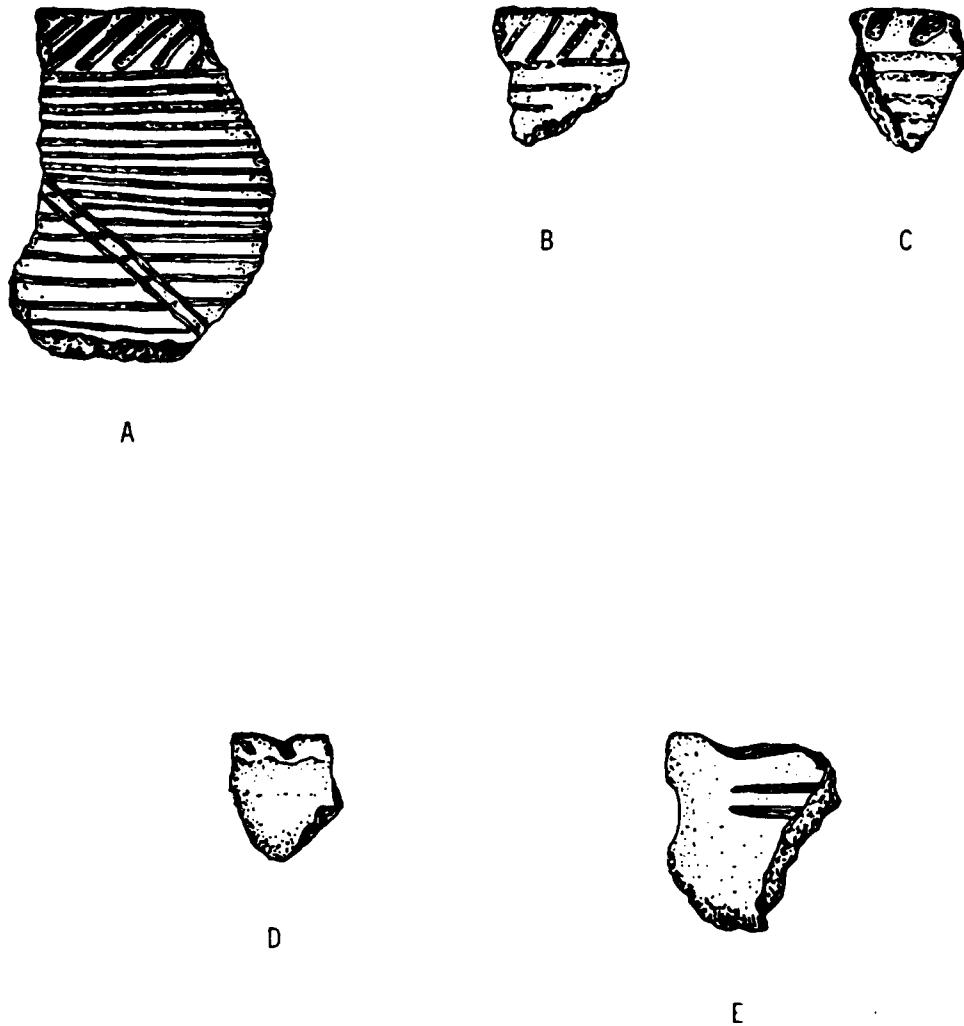


Figure 103. Selected Sand and/or Grit Tempered Ceramics from 13BN203.
(A-B) Great Oasis Incised rims #1 and 111, respectively; (C) Great
Oasis Incised rim #158, with tool impressed lip; (D) Smoothed rim
#1A, with outwardly-beveled and tool incised lip; (E) Smoothed
body sherd #150, with stamped or tool incised decoration. C is
from the plowzone of Test Square #2, E is from the base of the
plowzone within Horizontal Scrape #5, and all other specimens
are from the surface. Actual size

Results of Testing at Site 13BN203

On the basis of the tests conducted at 13BN203 it appears that the site was the locus of two successive prehistoric occupations -- a Woodland domestic campsite followed by an encampment of Great Oasis affiliation. Neither of these components is well preserved at the site, both having been largely incorporated into the plowzone by modern agricultural practices. However, at least part of the Woodland component was found to occur sporadically within the first 0.3-0.4 ft. (9-12 cm.) below the base of the plowzone. No cultural features which could be attributed to either of the prehistoric occupations were located. Indications are from both the tests and surface collections that the entire upper terrace remnant appears not to have been occupied. Testing has established that any deeply-buried cultural zones at the site are unlikely.

The prehistoric data classes available include ceramics; chipped stone tools such as projectile points, an end scraper (Figure 105, C), thin bifaces (e.g. Figure 105, A and B), thick bifaces, retouched flakes, and utilized flakes; chipped stone source and waste materials in the form of cores (e.g. Figure 105, D) and core fragments, shatter, and waste flakes; and ground stone tools such as axe or celt segments (e.g. Figure 107, B), a grinding stone (Figure 107, A), and sandstone abraders (e.g. Figure 106). Faunal remains are present only from the surface in the form of a radius from a white-tailed deer plus other assorted bone fragments and a few freshwater mussel shell fragments, and the only plant remains are a few pieces of charcoal from Feature 1, which upon excavation proved to be the mold of a modern tree root.

The ceramics present from the surface and plowzone include portions of at least four Great Oasis incised rims (e.g. Figure 103, A-C). These are characterized as upright rims with flattened lip surfaces and exterior decoration of finely-incised horizontal and oblique lines. The external lip border consists either of short oblique incised lines or tool im- . pressions. Rim thickness of the specimens available is no greater than 7 mm. Tempering material used is fine grit with some sand particles. The one neck juncture present in the inventory forms nearly a right angle between the vessel rim and body. It is likely that several of the thinner cord roughened sherds in the inventory are portions of the bodies of these or other Great Oasis vessels. The decorated rims are similar to those excavated from several other Great Oasis components in the central Des Moines Valley including 13BN38, just across the river from 13BN203, and from 13BN110, a Great Oasis village located nearly 6 miles (10 km.) up- stream from the site (cf. Gradwohl 1975: 143-149, 204-205; and refer to the discussion of 13BN28 earlier in this report). The expected period of occupation of these Great Oasis sites, on the basis of radiocarbon dates gotten from 13BN110, falls around A.D. 1000 (Gradwohl 1974: 97). Small plain or notched triangular projectile point, which would be ex- pected in a Great Oasis assemblage, are not present in the inventory from 13BN203.

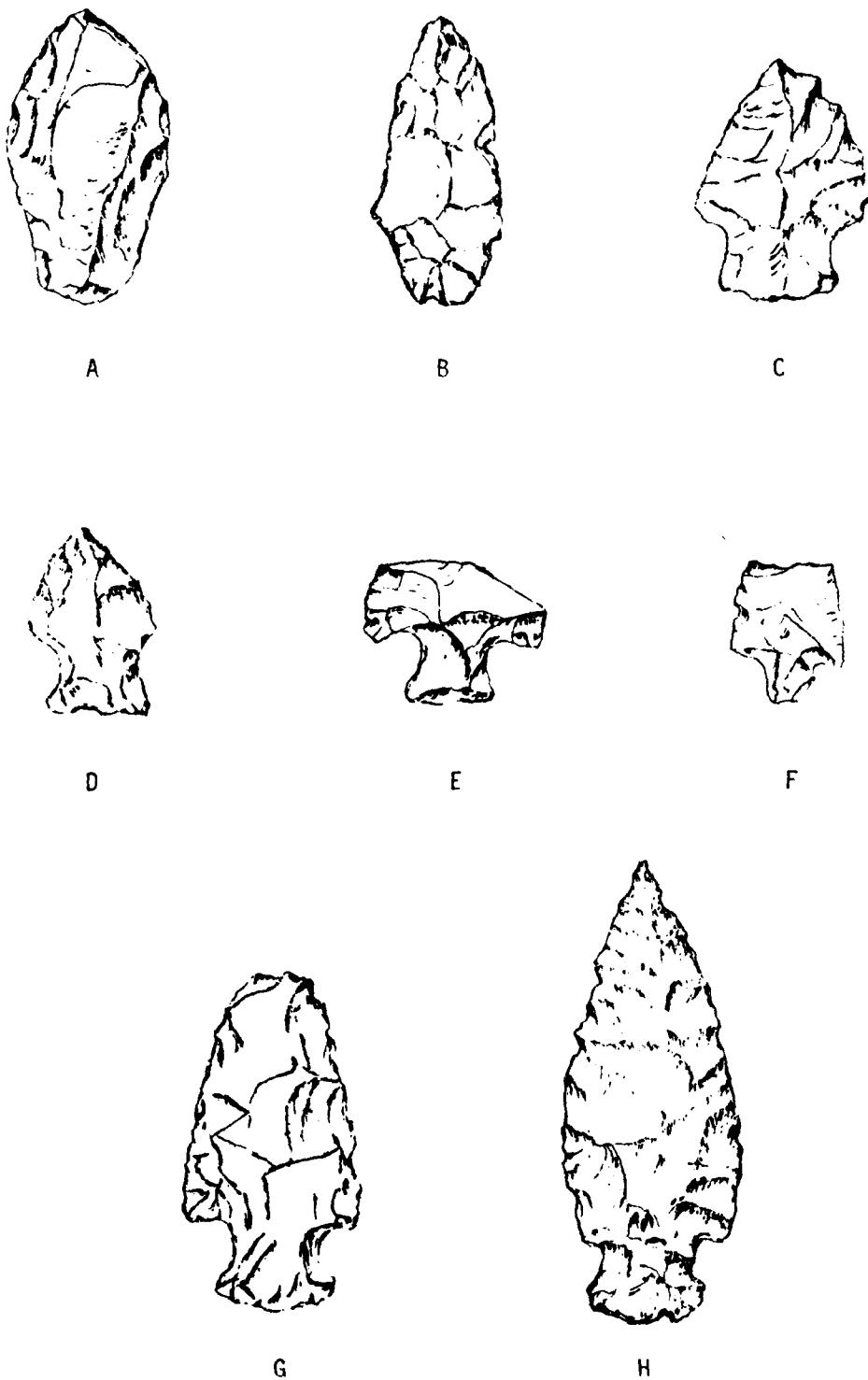


Figure 104. Projectile Points from 13BN203. (A-B) Contracting base stemmed points #18 and 17, respectively; (C-H) Expanding base stemmed or broadly corner notched points #16, 14, 19, 20, 13, and 15, respectively. All specimens are from the surface. Actual size

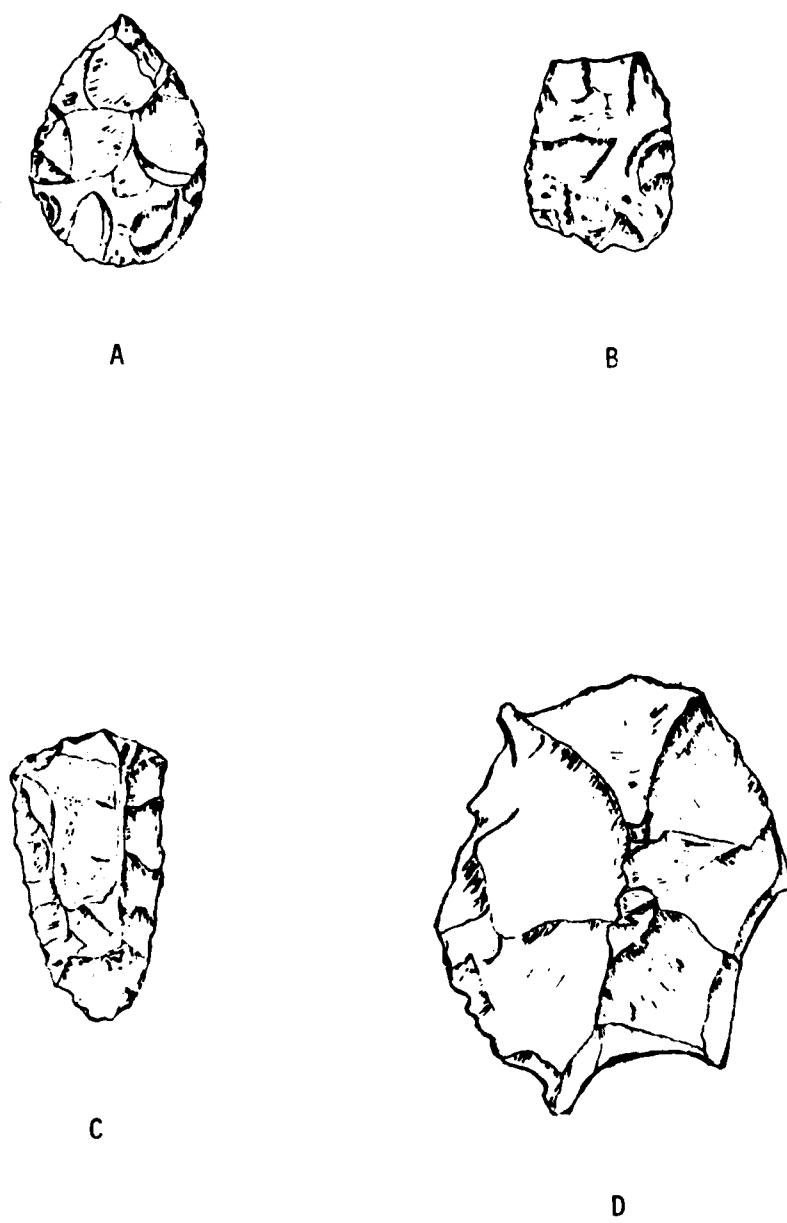


Figure 105. Selected Chipped Stone Tools and Source Materials from 13BN203.
(A-B) Thin bifaces #26 and 28, respectively; (C) End scraper #24;
(D) Bifacial core #35. All specimens are from the surface.
Actual size

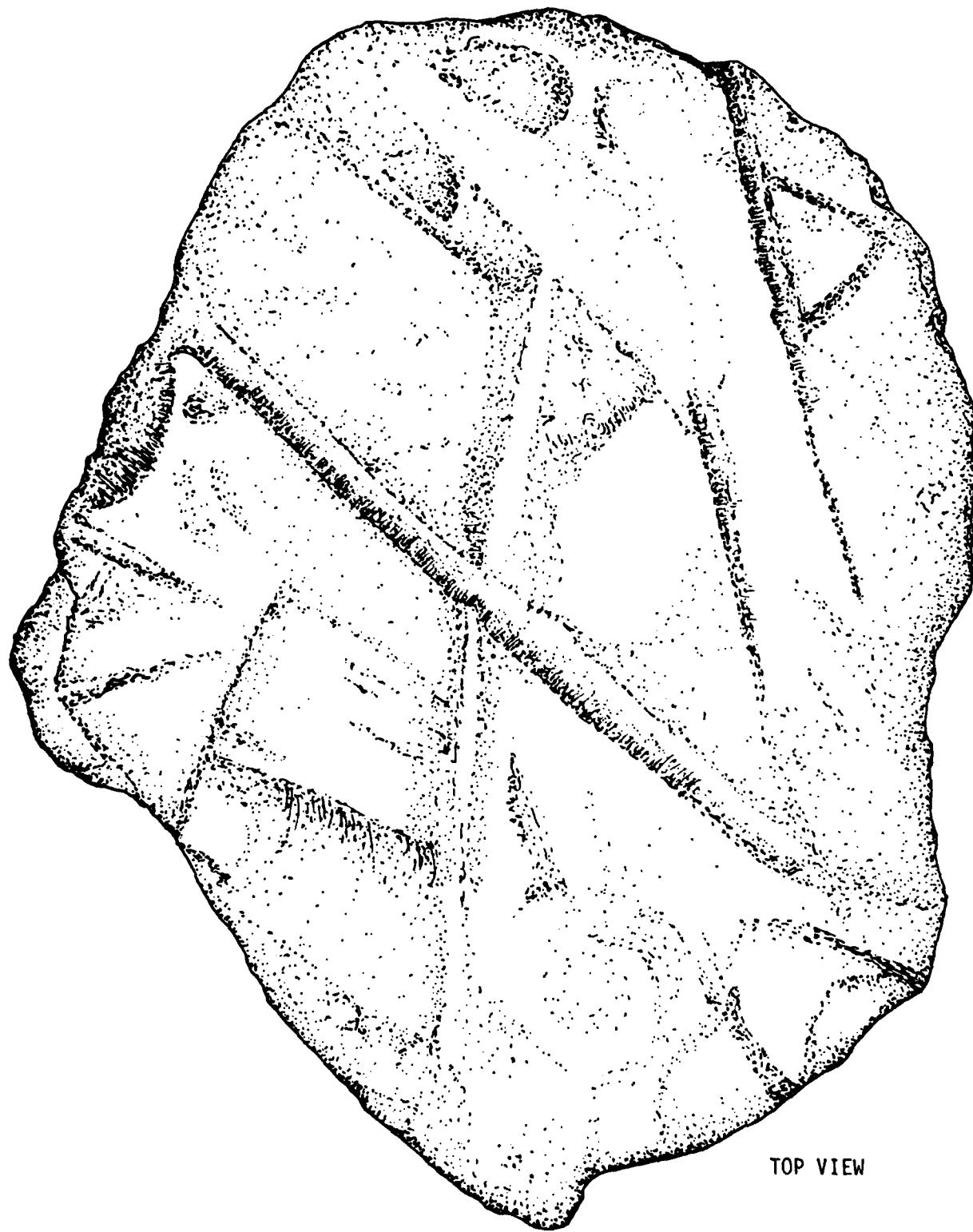
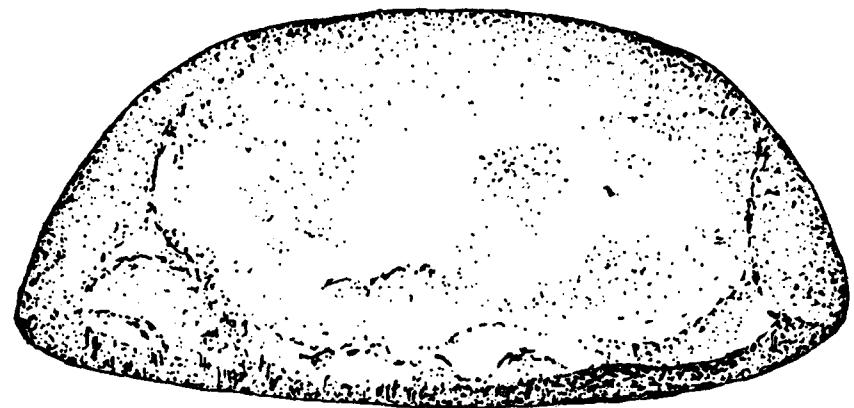
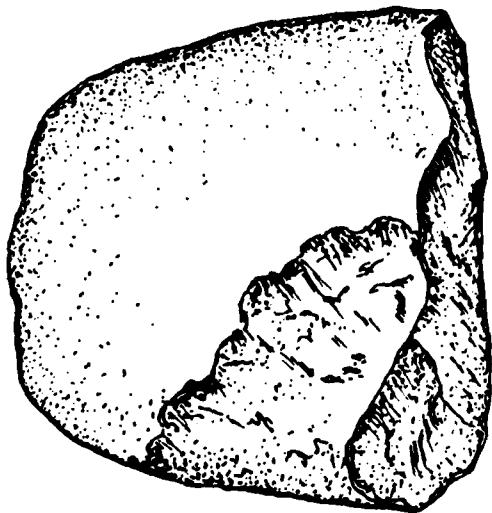


Figure 106. Sandstone Abrader from 13BN203. Specimen #148, a coarse red sandstone slab with U-shaped grooves recovered from the plowzone within Horizontal Scrape #3. Actual size



SIDE VIEW

A



B



C

Figure 107. Selected Prehistoric Ground Stone Artifacts and Historic Metal Item from 13BN203. (A) Fine-grained quartzite grinding stone or mano #40, (B) Diorite axe bit #36, (C) Brass ownership or license tag #60. All specimens are from the surface. Actual size

The rest of the ceramics from 13BN203 are not as easily classified; however, these pieces do seem to fall within a general Woodland category. One sherd is from primary context below Horizontal Scrape #5 and two more are from primary context within Test Square #3; all others are from the surface and plowzone. Most of the pieces are body sherds and are heavily tempered with angular grit and bear cord roughened surface treatment. Some are as much as 12 mm. thick. The two small rim segments available are smoothed and one bears short tool impressions on the lip exterior (Figure 103, D). The only decorated body sherd is either stamped or incised (Figure 103, E) and may be comparable to sherds illustrated by Griffin (1952: 110-111) which he calls Naples Stamped, plain variety. The projectile point styles present in the inventory are stemmed or notched varieties (Figure 104, C-H) which might be expected in late Archaic to Middle Woodland assemblages (cf. Ritzenthaler 1967: 25, 27-28); the contracting base stemmed point style (Figure 104, A and B), however, could be derived from an earlier late Paleo-Indian to early Archaic assemblage (cf. Anderson and Semken 1980: 216, 263).

Several historic items are present in the surface inventory from 13BN203 and undoubtedly represent the earliest Euro-American occupation of the farmstead near the eastern end of the site. This farm was occupied until Federal acquisition of the property in the late 1960s, after which the buildings were either torn down or moved away. The classes of materials collected include domestic table and kitchen wares such as porcelain, ironstone china, and stoneware vessel fragments (some of the latter of which may be of local manufacture); construction materials such as a glazed redware door knob and iron square cut nails; and miscellaneous items such as a small iron handle, a brass and iron pocket knife, and a brass ownership or license tag (Figure 107, C).

Unfortunately, these tests show that 13BN203 retains marginal potential for providing answers to some of the research questions posed in regard to the prehistoric occupation and exploitation of the central Des Moines Valley. While it is significant that both Woodland and Great Oasis peoples chose this particular location for their encampments, not much contextual information remains to help relate the artifacts to structures or activity areas within each component or to indicate if there might have been interrelationships between the Woodland and Great Oasis components. Ecofactual data have not yet been recovered from which season of settlement or the kinds of plants and animals utilized might be derived.

Impacts of the Saylorville Lake Project on Site 13BN203

In the past some clearing of trees from the terrace margins at 13BN203 as part of the construction of Saylorville Lake has undoubtedly had some adverse effect on the cultural remains there. The site now lies within the flood control pool of Saylorville Lake, a position which assures that it will undergo inundation any time the lake level is allowed to rise above 850 feet in elevation for flood storage. Wave action against the extremely sandy soil of the terrace escarpment will cause widespread under-cutting and slumping all along that margin and any remaining archaeological remains could be destroyed in a relatively short period of time. Current planting of this field to a broadcast crop such as oats, rather than a row crop, has probably served to help stabilize the natural soil movement at the site. No secondary impacts beyond wildlife management and leased cultivation are known to be scheduled for this area.

Recommendations for Further Work at Site 13BN203

It has been shown that a small portion of a Woodland component may have survived at 13BN203, and therefore some potential for recovering significant archaeological data does exist. Should additional investigations be contemplated for the site, it is recommended that the field be shallowly plowed and then that plowzone bladed away in selected areas on the terrace surface to allow careful scrutiny and excavation of the cultural zone remnant beneath. Deep excavation units will probably not be required. However, it is the authors' considered opinion that comparable and probably more productive information on Woodland and Great Oasis manifestations could better be gathered from continued investigations at 13BN38, the site immediately across the Des Moines River from 13BN203.

CONCLUSIONS**BRIEF SUMMARY OF KNOWLEDGE ABOUT CENTRAL DES MOINES RIVER VALLEY ARCHAEOLOGY PRIOR TO THE PRESENT CONTRACT**

Prior to the middle of the twentieth century, relatively little was known about the archaeology of the central Des Moines River Valley. Of particular interest were articles published by Harlan (1908), Keyes (1927; 1951), and Van Hyning (1910a; 1910b). These sources indicated the presence of Woodland Tradition sites throughout the region as well as several Oneota sites along the Des Moines River southeast of the city of Des Moines.

Concomitant with the construction of Red Rock Dam and Saylorville Dam, however, a considerable amount of archaeological survey, testing, and site excavation has been accomplished along the Des Moines River corridor between Fraser on the north and the Knoxville-Pella locality on the south. Since the primary data have been set out in detail elsewhere, a general summary of the region's cultural history will suffice here. This summary is based on the following sources: Ashworth and McKusick (1964), Brown (1966), Cole and Gradwohl (1969), Gant and Gradwohl (1966), Gradwohl (1965; 1966; 1967a; 1967b; 1969; 1973; 1974; 1975; 1982a; 1982b), Gradwohl and Osborn (1973a; 1973b; 1974; 1975a; 1975b; 1976; 1977), McKusick and Ries (1962), Osborn (1976), Osborn and Gradwohl (1977; 1980; 1981), Osborn, Gradwohl, and Thies (1978), Reynolds (1967; 1969a; 1969b), and Wheeler (1949). Salient data are here summarized in regard to the principal occupations of the central Des Moines River Valley as known from archaeological evidence: Paleo-Indian or Big Game Hunting Tradition, Archaic Tradition, Woodland Tradition, the Moingona Phase (Oneota), Great Oasis manifestations, and historic Euro-American settlements.

Paleo-Indian or early Big Game Hunting Tradition manifestations are not well known along the Des Moines River Valley although lanceolate projectile points are present in surface collections. As elsewhere in Iowa, some fluted projectile points are noted -- especially in several private collections south of the city of Des Moines -- but the absolute chronological association of these artifacts cannot be demonstrated at the present time. Medium to large-sized lanceolate projectile point forms, sometimes with parallel flaking, however, have been observed in local private collections as well as artifacts obtained during surface surveys by personnel from the Iowa State University Archaeological Laboratory. The lanceolate projectile points from 13PK140 and 13BN103 suggest, but do not demonstrate, a late Paleo-Indian or early Archaic occupation of the Des Moines River Valley. These forms might ultimately be related to the early occupation of Iowa as represented by manifestations in the lower level at the Cherokee Sewer Site. It is not unlikely that such a habitation of central Iowa, dating some eight to ten thousand years ago, occurred subsequent to the retreat of the Des Moines Lobe of the Wisconsin glaciation.

The potential for eventually demonstrating this general time period in central Iowa is suggested by projectile point forms resembling those defined in the literature as Agate Basin, Angostura, Meserve, Browns Valley, and Nebo Hill.

Somewhat more is known about sites attributable to the Archaic Tradition, in particular manifestations which could be typologically classified as Middle Archaic or Late Archaic. Affiliations with the Logan Creek Complex may be indicated by the surficial presence of medium-sized side notched projectile points with straight or slightly concave bases. Projectile points of this form date back some six to eight thousand years ago throughout the prairies and plains, although no primary dated associations have been established in central Iowa per se. Late Archaic components have been defined at 13PK149 and 13BN103. Charcoal from Feature 7 in the lowest defined cultural zone at 13BN103 yielded a date of $1,610 \pm 80$ B.C. Medium-sized parallel-stemmed projectile points with straight bases appear to be associated with this component. The lowest cultural zone at 13PK149, Level 8 of Depositional Unit IV, yielded charcoal which was assayed at 1145 ± 65 B.C. and 1095 ± 65 B.C. Unfortunately, the portions of this non-ceramic cultural zone did not produce projectile points or other artifacts diagnostic of cultural affiliation. A stratigraphically superior cultural zone at 13PK149, Level 6 of Depositional Unit III, produced charcoal which was assayed at 670 ± 65 B.C. Projectile points associated with that cultural zone are large to medium-sized stemmed or shallowly notched forms. These forms are similar to projectile points found in association with Late Archaic burials at the Lewis Central School Site in western Iowa. Charcoal from the latter site was assayed at 865 ± 80 B.C. (Anderson et al. 1978). From the evidence at hand, the people of the Archaic Tradition in the central Des Moines River Valley subsisted primarily by hunting large mammals such as deer, elk, and possibly bison, in addition to gathering nuts and seeds and collecting freshwater mussels, turtles, and other riverine resources. Some degree of seasonal sedentism appears to be reflected in the hearths and trash-filled pits discovered in the lowest cultural zones at 13PK149 and 13BN103. In addition there is evidence of a possible enclosed shelter in Level 6 of Depositional Unit III at 13PK149.

Sites attributable to the Woodland Tradition are relatively abundant along the central Des Moines River Valley. Woodland Tradition sites in this region represent both mortuary and domestic sites. Burial mounds include the Boone Mound originally investigated by T. Van Hyning as well as several sites investigated under the aegis of salvage archaeology: 13MA20 (Mohler-Miller Mounds), 13PK33 (Charles D. Johnson Mound), and 13PK144 (Saylorville Five). Test excavations at 13MA20 and 13PK33 yielded evidence of secondary bundle burials and discontinuous stone "paved areas." 13PK144, located at the eastern end of Saylorville Dam, has not been tested but instead preserved for possible public interpretation in the future.

Among the tested habitation sites of the Woodland Tradition in the central Des Moines River Valley are Middle Woodland components at 13MA41 (Milo's Silo Site), 13PK20 (Henry Woods Site), 13PK111 (Klein's Kleinezeit),

13PK149 (Darr-es-Shalom), 13PK175 (Bastille Bottoms), 13PK265 (Brassica Bench), 13BN12 (Carl Rose Site), 13BN103 (Logansport Site), 13BN121 (Sparks Site), and 13BN125 (Blosser Site). Projectile points typically represented at these sites are either narrow corner notched or contracting stemmed. Other stone artifacts characteristic of these sites are hematite celts, three-quarter grooved axes, sandstone abraders, drills, gravers/porforators, thin bifaces, and end scrapers. Ceramics at these sites are grit tempered and generally relatively thick. Both smoothed and cord-roughened surface treatments are noted. Reconstructed vessels, of which there are few, exhibit conical to sub-conical bases, incipient shoulders, and straight to slightly flaring rims. Decorative techniques typical of most of the Woodland ceramics in this region include embossing, punctuation, cord-wrapped stick impressing, incising or trailing, some dentate stamping, and occasional rocker stamping. These Middle Woodland decorative techniques are diagnostic of Havana Ware, Weaver Ware, and Linn Ware found along the Mississippi River drainage (Griffin 1952; Logan 1976; Benn 1978; Alex 1980: 88-91) and are also seen in Valley Cord Roughened Ware and Rowe Ware along the Missouri River drainage (Hill and Kivett 1940; Kivett 1952; Tiffany 1978). The primary subsistence activities represented by these and other Woodland Tradition components in the central Des Moines River Valley appear to be a continuation of those inferred for earlier Archaic occupations: hunting of mammals, gathering of clams and turtles and perhaps other riverine resources, and collecting nuts, seeds, and berries. These activities are probably long-standing patterns or "efficiencies" throughout the entire human occupation of this region. Both the forests and prairies of this region offer abundant resources which can be exploited at different times of the year. Several Middle Woodland components in this region have been dated by radiocarbon assays. Charcoal from 13MA41 was assayed at A.D. 300 ± 80 and A.D. 570 ± 100 . A date of A.D. 350 ± 55 was obtained on charcoal excavated at 13BN121. At 13PK149 charcoal from Features 8, 12, and 55 yielded respective dates of A.D. 345 ± 60 , A.D. 345 ± 55 , and A.D. 475 ± 55 . Feature 58 at 13PK149 yielded charcoal which assayed at A.D. 1110 ± 50 ; but that feature is most likely from an occupation which is subsequent to that evidenced by Features 8, 12, and 55.

The Saylorvillage Site (13PK165) and surface materials from a number of other sites provide evidence for a Late Woodland occupation of the central Des Moines River Valley. Found in context at 13PK165 were single-cord impressed ceramics with modelled nodes, castellations, and squared orifices. That pottery, called Saylor Ware, was associated with small triangular unnotched projectile points and small triangular points with side and/or basal notches (Osborn, Gradwohl, and Thies 1978). The single cord-impressed ceramics from 13PK165 show affinities to Madison Ware and Minnott's Ware known from the Mississippi River drainage (Baerreis 1953; Logan 1976; Benn 1978; Alex 1980: 91-93) and to Feye Cord Impressed Ware and Missouri Bluffs Cord Impressed Ware obtained from sites within the Missouri River drainage (Kivett 1952; Tiffany 1978). Some evidence of cultigens -- charred corn kernels and one cucurbit seed -- was extracted from the Saylorvillage Site. It is not unlikely that some Late Woodland peoples in this region were engaged in at least limited horticultural activities. Unfortunately no chronometric dates are available for these Late Woodland manifestations in the central Des Moines River Valley.

In evidence by A.D. 1000 in the Saylorville Lake project area are manifestations diagnostic of the Great Oasis occupation known from southwestern Minnesota, southeastern South Dakota, northeastern Nebraska, and northwestern Iowa (cf. Wilford 1945; 1955; Johnson 1969; Henning and Henning 1978). In addition to surface distributions of Great Oasis Incised and Great Oasis Plain ceramics are contextually derived components excavated from 13BN103 (Logansport Site), 13BN110 (Meehan-Schell Site), 13BN125 (Blosser Site), and 13BN130 (Old Moser Site). Great Oasis pottery is characteristically tempered with fine sand or crushed granite. Other diagnostic attributes include flattened lips, straight rims which are low and vertical to flaring, and a lack of appendages. Most vessel exteriors are smoothed, but cord roughening is also observed. Great Oasis Incised motifs are tool impressed and finely incised on the upper and outer lip surfaces and on rim exteriors. The characteristic rim decoration includes a narrow upper border of short tool impressions or diagonal parallel incisions. Below this band occurs a field of closely spaced, parallel, horizontal incisions upon which are often superimposed pairs of oblique incisions, zigzags, pendant triangles, or biomorphic designs. Among the plain rims are those with small wedge-shaped lips. Principal non-ceramic artifacts include small plain or side-notched triangular projectile points, small end scrapers, expanded base drills, ovate knives, sandstone abraders, pecked and polished celts, grinding stones, bone awls, and spatulate objects. Both hunting and horticultural subsistence activities are evidenced at excavated Great Oasis sites in the central Des Moines River Valley. Although the faunal inventory is sparse and often poorly preserved, the remains of deer, beaver, fish, turtle, and freshwater mussels have been identified. Vegetal remains indicative of gardening include maize, sunflower, squash or gourd, and Chenopodium (goosefoot). Hackberry seeds and walnut shells are evidence of collecting activities. Three radiocarbon dates were obtained on charcoal excavated from storage pits at 13BN110. The assays were A.D. 975 ± 55, A.D. 1000 ± 55, and A.D. 1080 ± 60.

South of the city of Des Moines are located Oneota village manifestations which have been designated the Moingona Phase. Relatively extensive excavations were conducted at 13MA30 (Mohler Farm Site), 13WA2 (Clarkson Site), 13WA105 (Cribb's Crib Site), and 13PK1 (Howard Goodhue Site). Additional components are known from surface collections at sites within the Red Rock Lake project. At the present time no Oneota components can be defined upstream from Saylorville Dam although a few shell tempered sherds have been collected at several sites in the Saylorville Lake project area. Oneota ceramics of the Moingona Phase are typically decorated with trailed and punctated decoration on the shoulders of vessels and on rim interiors. Handles, both of loop and strap form, are also often decorated. Trailed nested chevrons characteristically decorate rim interiors. Alternating shoulder designs include both rectilinear and curvilinear motifs. Concentric circle, cross, and circle-cross motifs occur, in addition to a large number of linear trailed and punctated designs. Other ceramic artifacts include pipes and beads. Among the chipped stone artifacts are abundant small plain triangular projectile points, elongate oval knives, occasional diamond-shaped alternately beveled knives, and a variety of end scrapers. Horticultural tools were fashioned from bone

and antler and include scapula hoes, antler rakes, and antler picks. Other bone implements include awls, needles, fishhooks, socketed points, knives, scrapers, flakers, hide grainers, and paint applicators. Among the shell artifacts are scoops, spoons, beads, pendants, fish lures, and corn shellers. Copper artifacts are represented by rolled tubular beads. Subsistence activities included hunting, fishing, gathering, and intensive horticulture. Among the faunal inventory are remains of deer, elk, bison, canids, raccoon, beaver, fish, turtles, freshwater mussels, waterfowl, and smaller birds. Fruit pits and nuts are evidence of collecting. Horticulture is demonstrated by the presence of corn kernels and cobs at the four excavated components. Beans and squash are tentatively identified. Radiocarbon dates cluster at A.D. 1200 although both earlier and more recent assays have been run. A date of A.D. 1650 ± 200 appears to be falsely recent. At present no Euro-American trade goods have been found in direct association with Moingona Phase sites unlike components at some Orr Focus sites (M. Wedel 1959: 63-77). For these and other reasons, components of the Moingona Phase are presently regarded as prehistoric in the strictest sense.

Various sites in the central Des Moines River Valley have provided archaeological evidence of the nineteenth century Euro-American occupation of the region. In addition to the sites of former farmsteads are materials relating to now-abandoned towns: Coalport, Clarkson, Elk Rapids, Coal Valley, and Logansport or Shepherd Town. Archaeological evidence is also abundant in regard to the regional ceramics industries: stoneware potteries as well as brick and tile kilns. Among the middle and late nineteenth century stoneware manufacturing operations investigated are 13MA103 (Coalport Kiln), 13MA104 (Whitebreast Kiln), 13MA106-C (Gidel Kiln), 13MA113 (Pella-Welch Kiln), 13BN111 (Noah Creek Kiln), 13BN120 (Moingona Pottery Works), 13BN131 (Franklin Kiln), 13BN132 (Flintstone Pottery), and 13BN138 (Griffey Pottery). The synthesis of archaeological, archival, experimental, and ethnographic data indicates the rapid growth of an essentially handcraft trade into a mechanized, technologically complex business. The demise of this pioneer industry appears to be connected with other economic factors including changes in transportation and settlement patterns, trade networks, food preparation and preservation techniques, and the contraction of the regional coal mining operations. For more than fifty years, however, regional potters provided utilitarian wares such as butter crocks, butter churns, fat lamps, storage crocks, milk bowls, and preserve jars to the Euro-American settlers. Other Euro-American archaeological sites investigated in this region include bridges, roads, coal mines, and cemeteries. The residues of the historic Euro-American occupation of this region provide a comparative framework for viewing prehistoric socio-cultural activities along the Des Moines River Valley in addition to facilitating certain controls which can be applied via archival documents and oral history.

CONTRIBUTIONS MADE UNDER THIS CONTRACT TO THE UNDERSTANDING OF
THE CULTURE HISTORY WITHIN THE CENTRAL DES MOINES RIVER VALLEY

The archaeological testing conducted under this contract was not primarily intended to produce answers to all of the general research questions posed in regard to the prehistory of the central Des Moines River Valley. The testing program was rather launched in an attempt to determine the potential of sites for answering the research questions. At the same time, however, a considerable amount of valuable information was added to the data base summarized in the previous section of this report.

Of all the data gathered via these tests, perhaps the most evidence pertains to Middle Woodland manifestations with ceramic assemblages bearing Havana-Hopewell characteristics. Such components are now known to be or to have been recently present in primary context at 13BN27, 13BN30, 13BN38, 13BN123, 13BN168, and 13BN182, and all appear to have been domestic village areas or campsites. Among these, site 13BN30 is likely to have served additionally as a religious center due to its position around the former large conical mortuary structure known as the Boone Mound (13BN29), positively attributed to the Middle Woodland-Hopewell period on the basis of an excavation carried out there in 1907. Limited human mortuary remains were also present at 13BN123. Of particular significance, waste flakes of black obsidian obtained from the Yellowstone National Park area of the Rocky Mountains were recovered from the cultural deposits at 13BN30 and 13BN123. These waste flakes support the hypothesis that a wide network of transcontinental trade, one hallmark of Middle Woodland-Hopewell manifestations (cf. Willey 1966: 280), was in effect in the central Des Moines River Valley as well as in the more classic Hopewellian loci to the east. A remarkable diversity in decorative motifs is noted in the ceramic assemblages from each of these components, yet the characteristics are present which also distinguish these ceramics as distinctly Havana-Hopewell. This suggests a great deal of cultural continuity within this portion of the Des Moines Valley and a sharing of ideas, if not of actual potters themselves, from site to site. Some of the ceramics present such as Weaver and Spring Hollow Incised wares suggest a transition from Middle Woodland to late Middle Woodland assemblages as these have been described in Iowa and elsewhere in the prairie peninsula (Alex 1980: 88-91; Logan 1976: 174).

Distinct temporal relationships between these Middle Woodland components on the basis of absolute dating techniques remain enigmatic, however. Radiocarbon dates were obtained from each of the Woodland components at 13BN30, 13BN123, and 13BN182:

13BN30	350 B.C. ± 60 years	(BETA-2810)
13BN123	A.D. 1010 ± 60 years*	(*extremely small sample) (WIS-906)
13BN182 (Upper cultural zone)	A.D. 130 ± 60 years	(BETA-2811)
13BN182 (Lower cultural zone)	540 B.C. ± 80 years	(BETA-2812)

The time span indicated is far too great to be entirely valid; Hopewellian manifestations are thought to have been present in the upper Mississippi Valley region roughly between 300 B.C. and A.D. 500-700 (cf. Willey 1966: 251). In Iowa the earliest date for Woodland ceramics is not agreed upon, although Alex (1980: 123-24) allows a time range of approximately A.D. 1 to A.D. 500 for Middle Woodland manifestations. Obviously, many more radiocarbon assays are needed before this segment of the Des Moines Valley's culture history is well understood.

Fewer components of the Late Woodland period are available for study among the Priority I sites tested. Site 13BN114 provides the only example of an extant Late Woodland cultural zone, and there the ceramic assemblage hints at a transition between or an amalgamation of Late Woodland and Great Oasis ceramic styles. This information is significant in establishing the relative position of these two apparently distinct cultural manifestations within the temporal sequence of occupation within the valley. It suggests some temporal overlap between the two as well as the sharing of some techno-artistic ideas between groups.

The distinctive Great Oasis cultural components are present at Priority I sites other than 13BN114, including sites 13BN27 (located immediately across the river from 13BN114), 13BN38, 13BN40, and 13BN203; however, at each of these latter loci the definable Great Oasis Cultural remains are restricted to the surface and plowzone, and primary cultural context appears to have been lost. Judging from the evidence at 13BN103 (Logansport Site) and 13BN111 (Meehan-Schell Site) however, truncated storage pits and other features might be located immediately below the base of the plowzone at these sites if additional horizontal testing were implemented.

Also of extreme archaeological significance is the presence of a few shell tempered ceramic specimens in the artifact inventory at 13BN114. The presence of pottery in which shell was used as a tempering medium suggests some degree of diffusion from an Oneota source, and the closest documented Oneota sites are Moingona Phase villages which occur along the Des Moines drainage south of the Des Moines River/Raccoon River juncture (Gradwohl 1974: 96) and at least 45 miles (72 km.) south of 13BN114. The present hypothesis is that some form of trade was going on between the Late Woodland/Great Oasis inhabitants at 13BN114 and Oneota villagers to the south during the period after A.D. 1000, but further archaeological investigation is required to confirm this assumption on the basis of primary contextual data.

An assumption remains that one of the economic bases of prehistoric life along the central Des Moines Valley from the Middle and/or Late Woodland period on was the practice of horticulture and the development and utilization of such cultigens as maize, beans, squash and other curcubits, and domesticated sunflowers. It is also assumed that for populations to have increased in the post-Woodland era, an even greater dependence upon agriculture would have been necessary. Tests conducted at the Priority I sites have not yet provided conclusive evidence to support these hypotheses. However, the tests have shown that conditions at several of the sites -- particularly 13BN27, 13BN30, 13BN38, 13BN106, 13BN114, 13BN168, and

13BN182 -- are favorable for the preservation of charred cultivated plant remains and that the potential for their recovery is good should these be present in the site matrixes. By the same token, wild plant remains and faunal evidence should also be preserved. These potential remains might be used, in part, to determine which of those resources which were utilized in hunting/gathering economies, and also to reconstruct to some degree the ecological setting within which the different groups lived and interacted with the environment. Collectively, abundant microfaunal remains and a fair number of charred seed, nut, and wood specimens have been shown to be present in nearly half of the Priority I sites tested, and the potential is excellent for the location of still more significant amounts of such data which may be submitted for a more extensive analysis. The presence of charcoal in large enough quantities for additional radiocarbon assays is predicted from many of these sites on the basis of the present testing program. A more complete series of such absolute dates could be the key to placing the culture-historical and environmental reconstructions into a more discrete temporal perspective. A more complete chronological framework would facilitate a more precise approach to investigating the processual relationships posed in the over-all research questions.

OVER-ALL RECOMMENDATIONS FOR FURTHER WORK AT ARCHAEOLOGICAL SITES TESTED UNDER THIS CONTRACT

In the preceding discussion, data recovered from the testing of each of the fifteen Priority I archaeological sites specified in Contract DACW-80-C-0042 have been summarized. These tests have demonstrated that some of these sites have the potential to provide information which could elucidate several of the principal research questions posed for the archaeology of the central Des Moines River Valley and could shed additional light on other aspects of the prehistory of this region. The research questions or topics, stated in full in the Scope of Work (see Appendix F), are: (1) the relationship of Great Oasis and Oneota manifestations in the central Des Moines River Valley, (2) the nature and extent of Late Woodland manifestations in the region, (3) the relationship between Great Oasis and Late Woodland manifestations in central Iowa, (4) the nature of Middle Woodland components in the central Des Moines River Valley and the relationship of these manifestations to Havana sites in the Mississippi River Valley, (5) the evidence for horticulture associated with Woodland and/or post-Woodland manifestations in the region, and (6) the nature of prehistoric ecological systems and the relationship of changing environmental conditions to the culture historical sequence in the valley. On the basis of the information at hand, we have evaluated the potential of each of the fifteen sites and have ranked them in three groups for the purposes of making recommendations for further investigations. Table 16 displays the general ranking of the sites by over-all research potential as well as the apparent potential to specifically answer the six stated research questions. In some cases, the sites may further offer a potential to investigate additional research topics. Those potentials are also tabulated in Table 16 on the basis of data discussed for the individual sites in a previous section of this report.

Sites of Highest Potential

Sites ranked in the "Highest Potential" group are 13BN27, 13BN30, 13BN38, 13BN106, 13BN114, 13BN168, and 13BN182. As a group, these sites yielded the most definable data classes in regard to geomorphological setting and soil types, artifacts diagnostic of cultural affiliation and/or indicative of recognizable activity spheres, sub-plowzone cultural levels and/or demonstrable features, and potential ecofactual information.

Tests at 13BN27 provided some additional diagnostic artifacts pertaining to the Woodland and Great Oasis occupations of the valley. A cultural zone, below the depth of modern plowing, is extant over a portion of the site. This cultural zone yielded a feature, diagnostic Woodland artifacts, and ecofacts within the area explored in the present testing program. The Great Oasis occupation of this locality, however, may be restricted to the plowzone at this site. Among the sites investigated in the present project, 13BN27 appears to have a high potential for investigating research question 4, a moderate potential for investigating research questions 3 and 6, and a low potential for investigating research questions 1 and 2.

Tests at 13BN30 verified the existence of an extensive Woodland Tradition domestic settlement surrounding the Boone Mound which was excavated by Thompson Van Hyning in the first decade of this century. At least one demonstrable sub-plowzone cultural level contains definable features, diagnostic artifacts, some charcoal, and the potential for further ecofactual information. Typologically the ceramics are diverse but are unquestionably affiliated with Middle Woodland manifestations in eastern Iowa and western Illinois. A radiocarbon date of B.C. 350 ± 60 years was obtained from charcoal collected in this phase of testing. That date is presently regarded as somewhat too early for the ceramic types found in association. Further work to gather more data, particularly charcoal for additional radiocarbon assays, should clarify this matter. In terms of the stated research questions, 13BN30 appears to have a high potential for the investigation of research questions 4 and 5, a moderate potential for investigating research question 6, and a low potential for investigating research question 2.

Tests at 13BN38 revealed a Middle Woodland domestic occupation area below the depth of modern plowing. Although no definite features were observed in the present testing program, the cultural zone contained diagnostic artifacts, charcoal, calcined bone, and the potential for additional ecofactual data. Particularly interesting, from a typological perspective, are the boldly dentate ceramics from this site. A Great Oasis occupation also is manifested in this locality. The present tests, however, failed to identify a specific cultural zone associated with this prehistoric occupation of the Des Moines River Valley, although a portion of such a zone had been located during initial testing in 1967. Presently, the Great Oasis occupation may be restricted to the plowzone or, possibly, may be intact at other loci along the large terrace system extant in this

SITE	GENERAL POTENTIAL FOR FURTHER RESEARCH	POTENTIAL TO ADDRESS THE SIX RESEARCH QUESTIONS STATED IN THE SCOPE OF WORK						POTENTIAL TO ADDRESS OTHER CULTURE-HISTORICAL OR SCIENTIFIC RESEARCH QUESTIONS
		1	2	3	4	5	6	
13PK265	Low		L					L
13PK132	Low			L				L
13DA6	Moderate		L	L	L			L
13BN14	Moderate	L	L	L	L			M
13BN27	High	L	L	M	H			M
13BN30	High	L		H	H			M
13BN38	High		M	H	L			M
13BN40	Moderate		L	M	L			M
13BN102	Low		L		L			
13BN106	High		L		L			H
13BN114	High	H	H	M				M
13BN123	Low				L			L
13BN168	High		M		M			H
13BN182	High		L		H	M	H	
13BN203	Moderate	L	M	L	L			

Table 16. Tabular Summary of Research Potential of Sites Investigated. H = High Potential; M = Moderate Potential; L = Low Potential

portion of the valley. Among the archaeological sites investigated during the present project, 13BN38 appears to have a high potential for investigating research question 4, a moderate potential for investigating research questions 3 and 6, and a low potential for investigating research question 5.

Site 13BN106 is particularly interesting, given present test information, from the standpoints of geomorphology and potential stratigraphy. This site contains at least one buried surface and two paleosols. In addition to materials recovered from the surface and plowzone at 13BN106, there are at least two sub-surface cultural zones, one on the surface of the alluvial fan and the other on the terrace surface. A third buried surface, within the terrace sediments, was documented and was found to have associated with it a lens-shaped feature which may or may not be of cultural origin. Diagnostic artifacts recovered in this phase of investigations at 13BN106 were not abundant. Nevertheless this site exhibits a high potential for the recovery of culture-historical and paleo-environmental data. This site, of those presently investigated, appears to have a high potential for providing data to investigate research question 6, and a low potential for investigating research questions 2 and 4.

Site 13BN114 yielded at least one buried surface which is related to cultural materials. Although no features were discovered in this phase of investigations at the site, some cultural materials were documented in primary context below the depth of modern plowing. Cultural materials present at this site indicate either multi-componenty or close inter-relationships between Late Woodland and Great Oasis peoples at the site. The presence of a small number of shell tempered sherds is especially intriguing from the standpoint of possible trade connections with Oneota groups outside this particular portion of the Des Moines River Valley. This site also has a reasonable potential for the recovery of some ecofactual information. On these bases, 13BN114 is regarded as having a high potential for the investigation of research questions 1 and 2 and a moderate potential for the investigation of research questions 3 and 6.

Site 13BN168 contains at least one sub-plowzone cultural level. This phase of testing revealed a large prehistoric feature, a few diagnostic Woodland Tradition artifacts, fairly abundant faunal remains (both calcined and unburned fragments), and small charcoal samples. A high potential for chronological and ecofactual data recovery exists at 13BN168. This site, among the sites investigated under the present contract, appears to have a high potential for the further investigation of research question 6 and a moderate potential for investigating research questions 2 and 4.

Site 13BN182 contains abundant diagnostic artifactual data, at least two buried surfaces associated with cultural materials, charcoal for chronometric dating, and some ecofactual information. Ceramic design techniques and motifs reflect a diversity of Middle Woodland elements. Particularly interesting are zoned decorations and several different kinds of dentate stamping. Two prehistoric features were discovered in the present testing program at 13BN182. Charcoal from Feature 1, in the uppermost cultural zone, was assayed at A.D. 130 ± 80 years and is probably related to a Middle Woodland occupation of the Des Moines River Valley. Feature 2, from an apparent earlier Woodland component, yielded charcoal which was

assayed at 540 B.C. \pm 80 years. An even lower paleosol surface was observed at this site but, at the present time, no cultural associations can be demonstrated along that surface. In terms of the stated research questions, 13BN182 appears to have a high potential for investigating research questions 4 and 6, a moderate potential for investigating research question 5, and a low potential for investigating research question 2.

Sites of Moderate Potential

Given the data at hand, sites ranked in the "Moderate Potential" group are 13DA6, 13BN14, 13BN40, and 13BN203. These sites do contain some worthwhile information, but their potential for yielding data of quantity and quality appears to be less than the sites listed in the "Highest Potential" group. If time and funding are available, further testing might be considered but only after more work is accomplished at the "Highest Potential" sites. It may also be possible that better quality loci may exist among sites initially evaluated as Priority II and Priority III archaeological sites within the Saylorville Lake project.

Tests at 13DA6 revealed some materials within the plowzone while some ecofactual remains and lithics were found below the depth of modern plowing. This site is interesting from the standpoint of the geomorphological history of this section of the valley. However, the potential for investigating problems pertaining to the human occupation of this region appears to be only moderate. Of the sites investigated in the present project, 13DA6 is ranked as having a moderate potential for the investigation of research question 6 and a low potential for investigating research questions 2 and 4.

Site 13BN14 contains a range of cultural materials on its surface and a few items within the plowzone. Lower surfaces and/or paleosols were indicated in deep soil probes, but these cannot be demonstrated to be associated with cultural zones at this time. If these surfaces are investigated in the future, extensive excavation units with large vertical setbacks will be required. Given the data at hand, however, the potential for the recovery of cultural information at this site is regarded as only moderate. In terms of the stated research questions, 13BN14 is ranked as having a low potential for investigating research questions 1, 3, and 4. A moderate potential exists, however, for exploring the deeply buried paleosols.

Site 13BN40 yielded artifacts on the site surface and in the plowzone. A few items, some of which are of Middle Woodland cultural affiliation, were recovered from contexts below the depth of modern plowing. A burned area, interpreted as a prehistoric feature, was also discovered immediately below the plowzone contact. While some further information could undoubtedly be recovered at this site, a higher potential exists for gathering apparently comparable geomorphological and cultural data at 13BN106. Hence, 13BN40 is here ranked as of moderate potential while, as discussed above, 13BN106 is regarded among those sites ranked as having highest potential.

Among the archaeological sites investigated in the present contract, 13BN40 appears to have a moderate potential for the investigation of research question 4 and a low potential for the investigation of research questions 3 and 6.

Site 13BN203 contains surface materials indicative of multi-componentcy -- Great Oasis and Woodland. However, no definite paleosol surfaces were defined in the present phase of investigations. Some prehistoric artifacts were found in contexts below the depth of modern plowing and are probably of Woodland affiliation. Two features were designated in the field: one of these appears to represent a modern intrusion or tree stump from recent clearing and burning activities while the other may be a modern fencepost hole. While further investigations could certainly be undertaken at this site, more productive work could probably be accomplished across the river at 13BN38 or other sites in this locality. In terms of the stated research questions, 13BN203 is ranked as having a moderate potential for the investigation of research question 3 and a low potential for the investigation of research questions 1, 4, and 6.

Sites of Lowest Potential

Finally, four of the presently tested sites are ranked within a "Low Potential" group: 13PK265, 13PK132, 13BN102, and 13BN123. In the case of 13PK265, no further testing appears feasible in terms of the construction of recreation facilities which has already occurred there. This site is not regarded as having a potential to answer any of the stated research questions, although continued monitoring might provide data for the elaboration of other aspects of the culture historical sequence in the region. Sites 13PK132 and 13BN102 did not yield data of sufficient quality or quantity to merit consideration, in our opinion, for further testing at this time. Among the stated research questions 13PK132 is judged to have a low potential for the investigation of research question 2; 13BN102 appears to have a low potential for the investigation of research questions 2 and 4. Before any additional testing is undertaken at these sites, however, it would be wise to reconsider the potential of sites initially evaluated as Priority II and Priority III archaeological sites. No further testing appears to be merited at 13BN123 per se UNLESS the area is scheduled for additional recreational development at some future time. A low potential for the investigation of research question 4 may be argued. However, much of the area east of the gravel road is already disturbed in connection with the construction of the Riverbend Boat Launch and recreational satellite. If the area is further developed, we recommend that arrangements be made for an archaeological monitor to be on hand to insure absolutely that no further human skeletal remains go undetected should these be present at the site. We also recommend that any further extension of Hallett's gravel quarry to the east of that operation's present limits -- directly across the road from the locus designated as the site -- be monitored by a qualified archaeologist in the event that the mortuary area is more extensive than known on the basis of presently gathered information. These

recommendations are made primarily in the interests of sparing the construction contractor and the Rock Island District of the U.S. Army Corps of Engineers any adverse public reaction should additional human remains be unearthed.

Summary of Potential of Sites to Investigate Stated Research Questions

The potential of the fifteen tested archaeological sites to provide answers and/or needed data in investigating the six stated research questions has been discussed above as part of the individual summaries for each site. The information is also displayed in tabular fashion in Table 16. To recapitulate, the potential for investigating each of the six stated research questions at the sites covered under the present contract is summarized below:

Research Question #1: high potential at 13BN114; low potential at sites 13BN14, 13BN27, and 13BN203.

Research Question #2: high potential at 13BN114; moderate potential at 13BN168; low potential at sites 13PK132, 13DA6, 13BN27, 13BN30, 13BN102, 13BN106, and 13BN182.

Research Question #3: moderate potential at sites 13BN27, 13BN38, 13BN114, and 13BN203; low potential at sites 13BN14 and 13BN40.

Research Question #4: high potential at sites 13BN27, 13BN30, 13BN38, and 13BN182; moderate potential at sites 13BN40 and 13BN168; low potential at sites 13DA6, 13BN14, 13BN102, 13BN106, 13BN123, and 13BN203.

Research Question #5: high potential at 13BN30; moderate potential at 13BN182; low potential at 13BN38.

Research Question #6: high potential at sites 13BN106, 13BN168, and 13BN182; moderate potential at sites 13DA6, 13BN27, 13BN30, 13BN38, and 13BN114; low potential at sites 13BN40 and 13BN203.

As discussed in a previous section, additional research topics might be addressed at the following sites: 13PK265, 13PK132, 13DA6, 13BN14, 13BN27, 13BN40, 13BN106, and 13BN123.

SOME FINAL OBSERVATIONS

Beyond sampling the potential for collection of specific culture-historical and ecological data at Priority I sites within the Saylorville Lake project, the tests conducted under this contract have allowed the trial of various testing procedures under a range of field conditions. Some sites were actively being cultivated while others were within fallow areas reinvaded by grass and secondary tree growth. Cropping conditions ran the gamut from lush alfalfa hay, to oat stubble, to harvested corn and beans. Soil moisture conditions included extreme dryness which sometimes made

soil cores difficult to obtain, either because the probe could not penetrate the hardened soil or because lack of cohesion between soil particles would not allow an intact core to be pulled from the ground. Transects of soil cores placed across and along the axes of major geomorphological features proved to be a far more time, energy, and cost-efficient means of sampling for basic soils data than the proposed gridded system of soil probing would have been. Frost in the ground in early spring proved to be a barrier to obtaining good horizontal machine scrapes and satisfactory hand-dug test unit results, but did not impede trenching. At some sites, in addition to the longer vertical profile trenches, a series of short (10 ft., or 3 m., long) interrupted backhoe trenches was tried as one means of gaining vertical deposition and artifact distribution information, particularly when other methods were not as feasible. At those sites which had been or were still being cultivated, horizontal scraping by machine was most effective if the plowzone was first loosened with a mold-board plow before blading was begun. Unfortunately, a tractor and plow were not always available to fill this need. It became obvious that no one testing technique should be used to the total exclusion of others. Multiple procedures allow for flexibility in regard to pending field conditions, and the results from one technique often serve to complement the results from another. Above all, it should be emphasized that, while truck-mounted probes, backhoes, front-end loaders, and road patrols, and other mechanical aids can be used effectively for taking core samples, trenching, and quickly removing large amounts of overburden, there is still no substitute for controlled hand work by trained field technicians during the course of productive archaeological field testing.

In sum, this stage of archaeological testing in the Saylorville Lake project showed the importance of the cultural resources there and the potential for investigating a number of significant research questions pertaining to the prehistory of the central Des Moines River Valley and its broader relationships to the prehistory of the prairies and plains. It is hoped that continued research programs can be undertaken to follow up some of the results of this phase of the archaeological investigations in this region.

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